



BENDING SOLUTIONS  
COMPATIBILITY HÄMMERLE - BYSTRONIC



OVERVIEW

4 - 5

PUNCHES

6 - 16



DIES

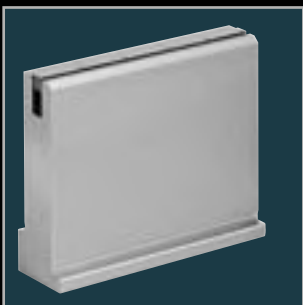
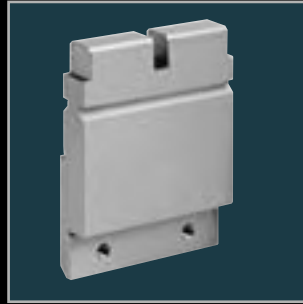
18 - 27

ABOUT US

28 - 35

# R

- ▶ Hämmerle-Bystronic



## OTHER **ROLLERI** CATALOGUES:

- ▶ CLAMPING SYSTEMS
- ▶ PRESS BRAKE TOOLS
- ▶ PRESS BRAKE TOOLS <sup>®</sup> American
- ▶ PUNCHING TOOLS
- ▶ IRON WORKER
- ▶ LASER CONSUMABLES
- ▶ INDUSTRIAL EQUIPMENT
- ▶ CRIMPING MACHINES





## PUNCHES ROLLERI HÄMMERLE-BYSTRONIC

### EXPLANATION

|       |   |
|-------|---|
| Tangs | 8 |
|-------|---|

### PUNCHES

|     |         |
|-----|---------|
| H11 | 8 - 11  |
| H14 | 11      |
| H12 | 12 - 13 |

### PUNCH HOLDERS

|     |         |
|-----|---------|
| H21 | 14 - 15 |
| H22 | 15      |

### RADIUS TOOLS

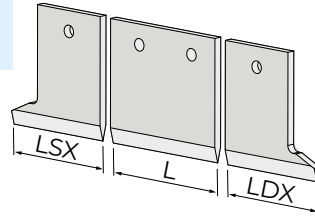
|     |    |
|-----|----|
| H22 | 16 |
|-----|----|



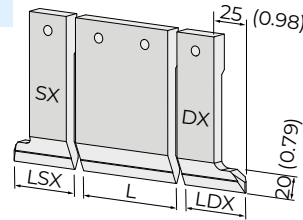
STANDARD TANG



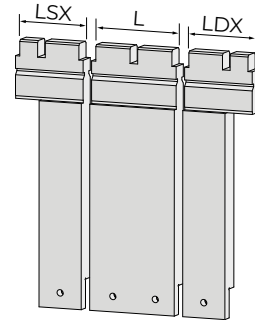
H11



H12



H21



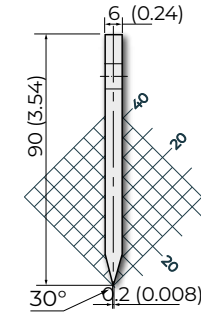
Punches H11

HRc 58-60

1000 kN/m max.

H11.002.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.002.01.01 | 100    | 3.94     | 0.40 kg |
| H11.002.02.01 | 50     | 1.97     | 0.20 kg |
| H11.002.02.02 | 55     | 2.17     | 0.22 kg |
| H11.002.02.03 | 60     | 2.36     | 0.24 kg |
| H11.002.02.04 | 65     | 2.56     | 0.26 kg |
| H11.002.02.05 | 70     | 2.76     | 0.28 kg |
| H11.002.02.06 | 75     | 2.95     | 0.30 kg |
| H11.002.02.07 | 80     | 3.15     | 0.32 kg |
| H11.002.02.08 | 85     | 3.35     | 0.34 kg |
| H11.002.02.09 | 90     | 3.54     | 0.36 kg |
| H11.002.02.10 | 95     | 3.74     | 0.38 kg |
| H11.002.04.01 | 75 DX  | 2.95 DX  | 0.28 kg |
| H11.002.04.02 | 85 DX  | 3.35 DX  | 0.32 kg |
| H11.002.04.03 | 95 DX  | 3.74 DX  | 0.36 kg |
| H11.002.04.04 | 105 DX | 4.13 DX  | 0.38 kg |
| H11.002.04.05 | 115 DX | 4.53 DX  | 0.44 kg |
| H11.002.04.06 | 80 SX  | 3.15 SX  | 0.30 kg |
| H11.002.05.01 | 75 SX  | 2.95 SX  | 0.28 kg |
| H11.002.05.02 | 85 SX  | 3.35 SX  | 0.32 kg |
| H11.002.05.03 | 95 SX  | 3.74 SX  | 0.36 kg |
| H11.002.05.04 | 105 SX | 4.13 SX  | 0.38 kg |
| H11.002.05.05 | 115 SX | 4.53 SX  | 0.44 kg |
| H11.002.05.06 | 80 DX  | 3.15 DX  | 0.30 kg |

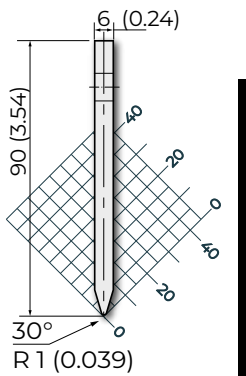


HRc 58-60

1000 kN/m max.

H11.001.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.001.01.01 | 100    | 3.94     | 0.40 kg |
| H11.001.02.01 | 50     | 1.97     | 0.20 kg |
| H11.001.02.02 | 55     | 2.17     | 0.22 kg |
| H11.001.02.03 | 60     | 2.36     | 0.24 kg |
| H11.001.02.04 | 65     | 2.56     | 0.26 kg |
| H11.001.02.05 | 70     | 2.76     | 0.28 kg |
| H11.001.02.06 | 75     | 2.95     | 0.30 kg |
| H11.001.02.07 | 80     | 3.15     | 0.32 kg |
| H11.001.02.08 | 85     | 3.35     | 0.34 kg |
| H11.001.02.09 | 90     | 3.54     | 0.36 kg |
| H11.001.02.10 | 95     | 3.74     | 0.38 kg |
| H11.001.04.01 | 75 DX  | 2.95 DX  | 0.28 kg |
| H11.001.04.02 | 85 DX  | 3.35 DX  | 0.32 kg |
| H11.001.04.03 | 95 DX  | 3.74 DX  | 0.36 kg |
| H11.001.04.04 | 105 DX | 4.13 DX  | 0.38 kg |
| H11.001.04.05 | 115 DX | 4.53 DX  | 0.44 kg |
| H11.001.04.06 | 80 SX  | 3.15 SX  | 0.30 kg |
| H11.001.05.01 | 75 SX  | 2.95 SX  | 0.28 kg |
| H11.001.05.02 | 85 SX  | 3.35 SX  | 0.32 kg |
| H11.001.05.03 | 95 SX  | 3.74 SX  | 0.36 kg |
| H11.001.05.04 | 105 SX | 4.13 SX  | 0.38 kg |
| H11.001.05.05 | 115 SX | 4.53 SX  | 0.44 kg |
| H11.001.05.06 | 80 DX  | 3.15 DX  | 0.30 kg |

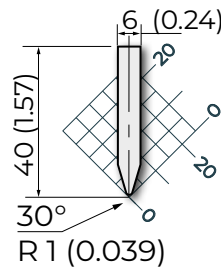


HRc 58-60

600 kN/m max.

H11.010.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.010.01.01 | 100    | 3.94     | 0.17 kg |
| H11.010.02.01 | 50     | 1.97     | 0.09 kg |
| H11.010.02.02 | 55     | 2.17     | 0.09 kg |
| H11.010.02.03 | 60     | 2.36     | 0.10 kg |
| H11.010.02.04 | 65     | 2.56     | 0.11 kg |
| H11.010.02.05 | 70     | 2.76     | 0.12 kg |
| H11.010.02.06 | 75     | 2.95     | 0.13 kg |
| H11.010.02.07 | 80     | 3.15     | 0.14 kg |
| H11.010.02.08 | 85     | 3.35     | 0.14 kg |
| H11.010.02.09 | 90     | 3.54     | 0.15 kg |
| H11.010.02.10 | 95     | 3.74     | 0.16 kg |
| H11.010.04.01 | 75 DX  | 2.95 DX  | 0.12 kg |
| H11.010.04.02 | 85 DX  | 3.35 DX  | 0.14 kg |
| H11.010.04.03 | 95 DX  | 3.74 DX  | 0.15 kg |
| H11.010.04.04 | 105 DX | 4.13 DX  | 0.17 kg |
| H11.010.04.05 | 115 DX | 4.53 DX  | 0.19 kg |
| H11.010.04.06 | 80 SX  | 3.15 SX  | 0.13 kg |
| H11.010.05.01 | 75 SX  | 2.95 SX  | 0.12 kg |
| H11.010.05.02 | 85 SX  | 3.35 SX  | 0.14 kg |
| H11.010.05.03 | 95 SX  | 3.74 SX  | 0.15 kg |
| H11.010.05.04 | 105 SX | 4.13 SX  | 0.17 kg |
| H11.010.05.05 | 115 SX | 4.53 SX  | 0.19 kg |
| H11.010.05.06 | 80 DX  | 3.15 DX  | 0.13 kg |

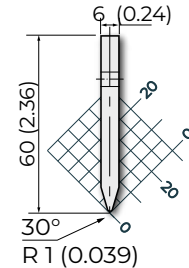


HRc 58-60

1000 kN/m max.

H11.007.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.007.01.01 | 100    | 3.94     | 0.26 kg |
| H11.007.02.01 | 50     | 1.97     | 0.13 kg |
| H11.007.02.02 | 55     | 2.17     | 0.14 kg |
| H11.007.02.03 | 60     | 2.36     | 0.16 kg |
| H11.007.02.04 | 65     | 2.56     | 0.17 kg |
| H11.007.02.05 | 70     | 2.76     | 0.18 kg |
| H11.007.02.06 | 75     | 2.95     | 0.20 kg |
| H11.007.02.07 | 80     | 3.15     | 0.21 kg |
| H11.007.02.08 | 85     | 3.35     | 0.22 kg |
| H11.007.02.09 | 90     | 3.54     | 0.23 kg |
| H11.007.02.10 | 95     | 3.74     | 0.25 kg |
| H11.007.04.01 | 75 DX  | 2.95 DX  | 0.18 kg |
| H11.007.04.02 | 85 DX  | 3.35 DX  | 0.21 kg |
| H11.007.04.03 | 95 DX  | 3.74 DX  | 0.23 kg |
| H11.007.04.04 | 105 DX | 4.13 DX  | 0.25 kg |
| H11.007.04.05 | 115 DX | 4.53 DX  | 0.29 kg |
| H11.007.04.06 | 80 SX  | 3.15 SX  | 0.20 kg |
| H11.007.05.01 | 75 SX  | 2.95 SX  | 0.18 kg |
| H11.007.05.02 | 85 SX  | 3.35 SX  | 0.21 kg |
| H11.007.05.03 | 95 SX  | 3.74 SX  | 0.23 kg |
| H11.007.05.04 | 105 SX | 4.13 SX  | 0.25 kg |
| H11.007.05.05 | 115 SX | 4.53 SX  | 0.29 kg |
| H11.007.05.06 | 80 DX  | 3.15 DX  | 0.20 kg |

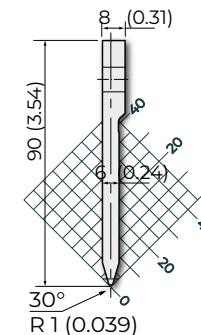


HRc 58-60

1000 kN/m max.

H11.008.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.008.01.01 | 100    | 3.94     | 0.44 kg |
| H11.008.02.01 | 50     | 1.97     | 0.22 kg |
| H11.008.02.02 | 55     | 2.17     | 0.24 kg |
| H11.008.02.03 | 60     | 2.36     | 0.26 kg |
| H11.008.02.04 | 65     | 2.56     | 0.29 kg |
| H11.008.02.05 | 70     | 2.76     | 0.31 kg |
| H11.008.02.06 | 75     | 2.95     | 0.33 kg |
| H11.008.02.07 | 80     | 3.15     | 0.35 kg |
| H11.008.02.08 | 85     | 3.35     | 0.37 kg |
| H11.008.02.09 | 90     | 3.54     | 0.40 kg |
| H11.008.02.10 | 95     | 3.74     | 0.42 kg |
| H11.008.04.01 | 75 DX  | 2.95 DX  | 0.31 kg |
| H11.008.04.02 | 85 DX  | 3.35 DX  | 0.35 kg |
| H11.008.04.03 | 95 DX  | 3.74 DX  | 0.40 kg |
| H11.008.04.04 | 105 DX | 4.13 DX  | 0.46 kg |
| H11.008.04.05 | 115 DX | 4.53 DX  | 0.48 kg |
| H11.008.04.06 | 80 SX  | 3.15 SX  | 0.33 kg |
| H11.008.05.01 | 75 SX  | 2.95 SX  | 0.31 kg |
| H11.008.05.02 | 85 SX  | 3.35 SX  | 0.35 kg |
| H11.008.05.03 | 95 SX  | 3.74 SX  | 0.40 kg |
| H11.008.05.04 | 105 SX | 4.13 SX  | 0.46 kg |
| H11.008.05.05 | 115 SX | 4.53 SX  | 0.48 kg |
| H11.008.05.06 | 80 DX  | 3.15 DX  | 0.33 kg |

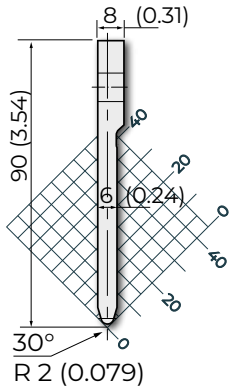


HRc 58-60

1000 kN/m max.

H11.006.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.006.01.01 | 100    | 3.94     | 0.44 kg |
| H11.006.02.01 | 50     | 1.97     | 0.23 kg |
| H11.006.02.02 | 55     | 2.17     | 0.25 kg |
| H11.006.02.03 | 60     | 2.36     | 0.27 kg |
| H11.006.02.04 | 65     | 2.56     | 0.29 kg |
| H11.006.02.05 | 70     | 2.76     | 0.32 kg |
| H11.006.02.06 | 75     | 2.95     | 0.34 kg |
| H11.006.02.07 | 80     | 3.15     | 0.36 kg |
| H11.006.02.08 | 85     | 3.35     | 0.38 kg |
| H11.006.02.09 | 90     | 3.54     | 0.41 kg |
| H11.006.02.10 | 95     | 3.74     | 0.43 kg |
| H11.006.04.01 | 75 DX  | 2.95 DX  | 0.32 kg |
| H11.006.04.02 | 85 DX  | 3.35 DX  | 0.36 kg |
| H11.006.04.03 | 95 DX  | 3.74 DX  | 0.41 kg |
| H11.006.04.04 | 105 DX | 4.13 DX  | 0.44 kg |
| H11.006.04.05 | 115 DX | 4.53 DX  | 0.50 kg |
| H11.006.04.06 | 80 SX  | 3.15 SX  | 0.34 kg |
| H11.006.05.01 | 75 SX  | 2.95 SX  | 0.32 kg |
| H11.006.05.02 | 85 SX  | 3.35 SX  | 0.36 kg |
| H11.006.05.03 | 95 SX  | 3.74 SX  | 0.41 kg |
| H11.006.05.04 | 105 SX | 4.13 SX  | 0.44 kg |
| H11.006.05.05 | 115 SX | 4.53 SX  | 0.50 kg |
| H11.006.05.06 | 80 DX  | 3.15 DX  | 0.34 kg |



Punches H11



HRc 58-60

1000 kN/m max.

H11.034.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.034.01.01 | 100    | 3.94     | 0.63 kg |
| H11.034.02.01 | 50     | 1.97     | 0.32 kg |
| H11.034.02.02 | 55     | 2.17     | 0.35 kg |
| H11.034.02.03 | 60     | 2.36     | 0.38 kg |
| H11.034.02.04 | 65     | 2.56     | 0.41 kg |
| H11.034.02.05 | 70     | 2.76     | 0.44 kg |
| H11.034.02.06 | 75     | 2.95     | 0.47 kg |
| H11.034.02.07 | 80     | 3.15     | 0.50 kg |
| H11.034.02.08 | 85     | 3.35     | 0.54 kg |
| H11.034.02.09 | 90     | 3.54     | 0.57 kg |
| H11.034.02.10 | 95     | 3.74     | 0.60 kg |
| H11.034.04.01 | 75 DX  | 2.95 DX  | 0.44 kg |
| H11.034.04.02 | 85 DX  | 3.35 DX  | 0.50 kg |
| H11.034.04.03 | 95 DX  | 3.74 DX  | 0.57 kg |
| H11.034.04.04 | 105 DX | 4.13 DX  | 0.63 kg |
| H11.034.04.05 | 115 DX | 4.53 DX  | 0.69 kg |
| H11.034.04.06 | 80 SX  | 3.15 SX  | 0.47 kg |
| H11.034.05.01 | 75 SX  | 2.95 SX  | 0.44 kg |
| H11.034.05.02 | 85 SX  | 3.35 SX  | 0.50 kg |
| H11.034.05.03 | 95 SX  | 3.74 SX  | 0.57 kg |
| H11.034.05.04 | 105 SX | 4.13 SX  | 0.63 kg |
| H11.034.05.05 | 115 SX | 4.53 SX  | 0.69 kg |
| H11.034.05.06 | 80 DX  | 3.15 DX  | 0.47 kg |

30°

HRc 58-60

1000 kN/m max.

H11.003.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.003.01.01 | 100    | 3.94     | 0.63 kg |
| H11.003.02.01 | 50     | 1.97     | 0.32 kg |
| H11.003.02.02 | 55     | 2.17     | 0.35 kg |
| H11.003.02.03 | 60     | 2.36     | 0.38 kg |
| H11.003.02.04 | 65     | 2.56     | 0.41 kg |
| H11.003.02.05 | 70     | 2.76     | 0.44 kg |
| H11.003.02.06 | 75     | 2.95     | 0.47 kg |
| H11.003.02.07 | 80     | 3.15     | 0.50 kg |
| H11.003.02.08 | 85     | 3.35     | 0.54 kg |
| H11.003.02.09 | 90     | 3.54     | 0.57 kg |
| H11.003.02.10 | 95     | 3.74     | 0.60 kg |
| H11.003.04.01 | 75 DX  | 2.95 DX  | 0.44 kg |
| H11.003.04.02 | 85 DX  | 3.35 DX  | 0.50 kg |
| H11.003.04.03 | 95 DX  | 3.74 DX  | 0.57 kg |
| H11.003.04.04 | 105 DX | 4.13 DX  | 0.63 kg |
| H11.003.04.05 | 115 DX | 4.53 DX  | 0.69 kg |
| H11.003.04.06 | 80 SX  | 3.15 SX  | 0.47 kg |
| H11.003.05.01 | 75 SX  | 2.95 SX  | 0.44 kg |
| H11.003.05.02 | 85 SX  | 3.35 SX  | 0.50 kg |
| H11.003.05.03 | 95 SX  | 3.74 SX  | 0.57 kg |
| H11.003.05.04 | 105 SX | 4.13 SX  | 0.63 kg |
| H11.003.05.05 | 115 SX | 4.53 SX  | 0.69 kg |
| H11.003.05.06 | 80 DX  | 3.15 DX  | 0.47 kg |

30°

HRc 58-60

1000 kN/m max.

H11.005.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.005.01.01 | 100    | 3.94     | 0.43 kg |
| H11.005.02.01 | 50     | 1.97     | 0.22 kg |
| H11.005.02.02 | 55     | 2.17     | 0.24 kg |
| H11.005.02.03 | 60     | 2.36     | 0.26 kg |
| H11.005.02.04 | 65     | 2.56     | 0.28 kg |
| H11.005.02.05 | 70     | 2.76     | 0.30 kg |
| H11.005.02.06 | 75     | 2.95     | 0.32 kg |
| H11.005.02.07 | 80     | 3.15     | 0.34 kg |
| H11.005.02.08 | 85     | 3.35     | 0.37 kg |
| H11.005.02.09 | 90     | 3.54     | 0.39 kg |
| H11.005.02.10 | 95     | 3.74     | 0.41 kg |
| H11.005.04.01 | 75 DX  | 2.95 DX  | 0.30 kg |
| H11.005.04.02 | 85 DX  | 3.35 DX  | 0.34 kg |
| H11.005.04.03 | 95 DX  | 3.74 DX  | 0.39 kg |
| H11.005.04.04 | 105 DX | 4.13 DX  | 0.40 kg |
| H11.005.04.05 | 115 DX | 4.53 DX  | 0.47 kg |
| H11.005.04.06 | 80 SX  | 3.15 SX  | 0.32 kg |
| H11.005.05.01 | 75 SX  | 2.95 SX  | 0.30 kg |
| H11.005.05.02 | 85 SX  | 3.35 SX  | 0.34 kg |
| H11.005.05.03 | 95 SX  | 3.74 SX  | 0.39 kg |
| H11.005.05.04 | 105 SX | 4.13 SX  | 0.40 kg |
| H11.005.05.05 | 115 SX | 4.53 SX  | 0.47 kg |
| H11.005.05.06 | 80 DX  | 3.15 DX  | 0.32 kg |

90°

HRc 58-60

1000 kN/m max.

H11.009.1

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.009.10.01 | 100    | 3.94     | 1.20 kg |
| H11.009.12.01 | 50     | 1.97     | 0.60 kg |
| H11.009.12.02 | 55     | 2.17     | 0.66 kg |
| H11.009.12.03 | 60     | 2.36     | 0.72 kg |
| H11.009.12.04 | 65     | 2.56     | 0.78 kg |
| H11.009.12.05 | 70     | 2.76     | 0.84 kg |
| H11.009.12.06 | 75     | 2.95     | 0.90 kg |
| H11.009.12.07 | 80     | 3.15     | 0.96 kg |
| H11.009.12.08 | 85     | 3.35     | 1.02 kg |
| H11.009.12.09 | 90     | 3.54     | 1.08 kg |
| H11.009.12.10 | 95     | 3.74     | 1.14 kg |
| H11.009.14.01 | 75 DX  | 2.95 DX  | 0.84 kg |
| H11.009.14.02 | 85 DX  | 3.35 DX  | 0.96 kg |
| H11.009.14.03 | 95 DX  | 3.74 DX  | 1.08 kg |
| H11.009.14.04 | 105 DX | 4.13 DX  | 1.21 kg |
| H11.009.14.05 | 115 DX | 4.53 DX  | 1.32 kg |
| H11.009.14.06 | 80 SX  | 3.15 SX  | 0.90 kg |
| H11.009.15.01 | 75 SX  | 2.95 SX  | 0.84 kg |
| H11.009.15.02 | 85 SX  | 3.35 SX  | 0.96 kg |
| H11.009.15.03 | 95 SX  | 3.74 SX  | 1.08 kg |
| H11.009.15.04 | 105 SX | 4.13 SX  | 1.21 kg |
| H11.009.15.05 | 115 SX | 4.53 SX  | 1.32 kg |
| H11.009.15.06 | 80 DX  | 3.15 DX  | 0.90 kg |

30°

Punches H14 - H11

HRc 58-60

1000 kN/m max.

H14.021.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H14.021.01.01 | 100    | 3.94     | 1.09 kg |
| H14.021.02.01 | 50     | 1.97     | 0.55 kg |
| H14.021.02.02 | 55     | 2.17     | 0.60 kg |
| H14.021.02.03 | 60     | 2.36     | 0.65 kg |
| H14.021.02.04 | 65     | 2.56     | 0.71 kg |
| H14.021.02.05 | 70     | 2.76     | 0.76 kg |
| H14.021.02.06 | 75     | 2.95     | 0.82 kg |
| H14.021.02.07 | 80     | 3.15     | 0.87 kg |
| H14.021.02.08 | 85     | 3.35     | 0.93 kg |
| H14.021.02.09 | 90     | 3.54     | 0.98 kg |
| H14.021.02.10 | 95     | 3.74     | 1.04 kg |

HRc 58-60

1000 kN/m max.

H11.033.1

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.033.11.01 | 100    | 3.94     | 0.46 kg |
| H11.033.12.01 | 50     | 1.97     | 0.23 kg |
| H11.033.12.02 | 55     | 2.17     | 0.25 kg |
| H11.033.12.03 | 60     | 2.36     | 0.28 kg |
| H11.033.12.04 | 65     | 2.56     | 0.30 kg |
| H11.033.12.05 | 70     | 2.76     | 0.32 kg |
| H11.033.12.06 | 75     | 2.95     | 0.35 kg |
| H11.033.12.07 | 80     | 3.15     | 0.37 kg |
| H11.033.12.08 | 85     | 3.35     | 0.39 kg |
| H11.033.12.09 | 90     | 3.54     | 0.41 kg |
| H11.033.12.10 | 95     | 3.74     | 0.44 kg |
| H11.033.14.01 | 75 DX  | 2.95 DX  | 0.32 kg |
| H11.033.14.02 | 85 DX  | 3.35 DX  | 0.37 kg |
| H11.033.14.03 | 95 DX  | 3.74 DX  | 0.41 kg |
| H11.033.14.04 | 105 DX | 4.13 DX  | 0.44 kg |
| H11.033.14.05 | 115 DX | 4.53 DX  | 0.51 kg |
| H11.033.14.06 | 80 SX  | 3.15 SX  | 0.35 kg |
| H11.033.15.01 | 75 SX  | 2.95 SX  | 0.32 kg |
| H11.033.15.02 | 85 SX  | 3.35 SX  | 0.37 kg |
| H11.033.15.03 | 95 SX  | 3.74 SX  | 0.41 kg |
| H11.033.15.04 | 105 SX | 4.13 SX  | 0.44 kg |
| H11.033.15.05 | 115 SX | 4.53 SX  | 0.51 kg |
| H11.033.15.06 | 80 DX  | 3.15 DX  | 0.35 kg |

HRc 58-60

1000 kN/m max.

H11.035.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.035.01.01 | 100    | 3.94     | 0.63 kg |
| H11.035.02.01 | 50     | 1.97     | 0.32 kg |
| H11.035.02.02 | 55     | 2.17     | 0.35 kg |
| H11.035.02.03 | 60     | 2.36     | 0.38 kg |
| H11.035.02.04 | 65     | 2.56     | 0.41 kg |
| H11.035.02.05 | 70     | 2.76     | 0.44 kg |
| H11.035.02.06 | 75     | 2.95     | 0.47 kg |
| H11.035.02.07 | 80     | 3.15     | 0.50 kg |
| H11.035.02.08 | 85     | 3.35     | 0.54 kg |
| H11.035.02.09 | 90     | 3.54     | 0.57 kg |
| H11.035.02.10 | 95     | 3.74     | 0.60 kg |
| H11.035.04.01 | 75 DX  | 2.95 DX  | 0.44 kg |
| H11.035.04.02 | 85 DX  | 3.35 DX  | 0.50 kg |
| H11.035.04.03 | 95 DX  | 3.74 DX  | 0.57 kg |
| H11.035.04.04 | 105 DX | 4.13 DX  | 0.63 kg |
| H11.035.04.05 | 115 DX | 4.53 DX  | 0.69 kg |
| H11.035.04.06 | 80 SX  | 3.15 SX  | 0.47 kg |
| H11.035.05.01 | 75 SX  | 2.95 SX  | 0.44 kg |
| H11.035.05.02 | 85 SX  | 3.35 SX  | 0.50 kg |
| H11.035.05.03 | 95 SX  | 3.74 SX  | 0.57 kg |
| H11.035.05.04 | 105 SX | 4.13 SX  | 0.63 kg |
| H11.035.05.05 | 115 SX | 4.53 SX  | 0.69 kg |
| H11.035.05.06 | 80 DX  | 3.15 DX  | 0.47 kg |

HRc 58-60

1000 kN/m max.

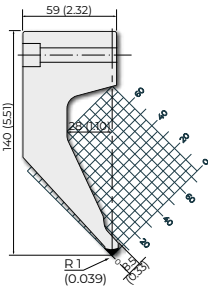
H11.036.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H11.036.01.01 | 100    | 3.94     | 0.74 kg |
| H11.036.02.01 | 50     | 1.97     | 0.37 kg |
| H11.036.02.02 | 55     | 2.17     | 0.41 kg |
| H11.036.02.03 | 60     | 2.36     | 0.44 kg |
| H11.036.02.04 | 65     | 2.56     | 0.48 kg |
| H11.036.02.05 | 70     | 2.76     | 0.52 kg |
| H11.036.02.06 | 75     | 2.95     | 0.56 kg |
| H11.036.02.07 | 80     | 3.15     | 0.59 kg |
| H11.036.02.08 | 85     | 3.35     | 0.63 kg |
| H11.036.02.09 | 90     | 3.54     | 0.67 kg |
| H11.036.02.10 | 95     | 3.74     | 0.70 kg |
| H11.036.04.01 | 75 DX  | 2.95 DX  | 0.52 kg |
| H11.036.04.02 | 85 DX  | 3.35 DX  | 0.59 kg |
| H11.036.04.03 | 95 DX  | 3.74 DX  | 0.67 kg |
| H11.036.04.04 | 105 DX | 4.13 DX  | 0.74 kg |
| H11.036.04.05 | 115 DX | 4.53 DX  | 0.81 kg |
| H11.036.04.06 | 80 SX  | 3.15 SX  | 0.56 kg |
| H11.036.05.01 | 75 SX  | 2.95 SX  | 0.52 kg |
| H11.036.05.02 | 85 SX  | 3.35 SX  | 0.59 kg |
| H11.036.05.03 | 95 SX  | 3.74 SX  | 0.67 kg |
| H11.036.05.04 | 105 SX | 4.13 SX  | 0.74 kg |
| H11.036.05.05 | 115 SX | 4.53 SX  | 0.81 kg |
| H11.036.05.06 | 80 DX  | 3.15 DX  | 0.56 kg |

Punches H12

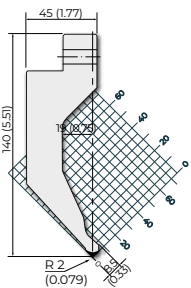
42Cr: 900-1150 N/mm<sup>2</sup> 975 kN/m max.

| H12.014.0     |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H12.014.01.01 | 100    | 3.94     | 3.36 kg |
| H12.014.02.01 | 50     | 1.97     | 1.68 kg |
| H12.014.02.02 | 55     | 2.17     | 1.85 kg |
| H12.014.02.03 | 60     | 2.36     | 2.02 kg |
| H12.014.02.04 | 65     | 2.56     | 2.18 kg |
| H12.014.02.05 | 70     | 2.76     | 2.35 kg |
| H12.014.02.06 | 75     | 2.95     | 2.52 kg |
| H12.014.02.07 | 80     | 3.15     | 2.69 kg |
| H12.014.02.08 | 85     | 3.35     | 2.86 kg |
| H12.014.02.09 | 90     | 3.54     | 3.02 kg |
| H12.014.02.10 | 95     | 3.74     | 3.19 kg |
| H12.014.04.01 | 75 DX  | 2.95 DX  | 2.35 kg |
| H12.014.04.02 | 85 DX  | 3.35 DX  | 2.69 kg |
| H12.014.04.03 | 95 DX  | 3.74 DX  | 3.02 kg |
| H12.014.04.04 | 105 DX | 4.13 DX  | 3.03 kg |
| H12.014.04.05 | 115 DX | 4.53 DX  | 3.70 kg |
| H12.014.04.06 | 80 SX  | 3.15 SX  | 2.52 kg |
| H12.014.05.01 | 75 SX  | 2.95 SX  | 2.35 kg |
| H12.014.05.02 | 85 SX  | 3.35 SX  | 2.69 kg |
| H12.014.05.03 | 95 SX  | 3.74 SX  | 3.02 kg |
| H12.014.05.04 | 105 SX | 4.13 SX  | 3.03 kg |
| H12.014.05.05 | 115 SX | 4.53 SX  | 3.70 kg |
| H12.014.05.06 | 80 DX  | 3.15 DX  | 2.52 kg |



42Cr: 900-1150 N/mm<sup>2</sup> 975 kN/m max.

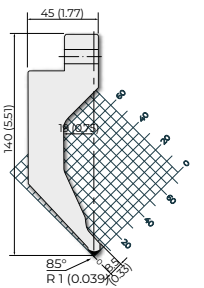
| H12.052.0     |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H12.052.01.01 | 100    | 3.94     | 2.63 kg |
| H12.052.02.01 | 50     | 1.97     | 1.32 kg |
| H12.052.02.02 | 55     | 2.17     | 1.45 kg |
| H12.052.02.03 | 60     | 2.36     | 1.58 kg |
| H12.052.02.04 | 65     | 2.56     | 1.71 kg |
| H12.052.02.05 | 70     | 2.76     | 1.84 kg |
| H12.052.02.06 | 75     | 2.95     | 1.97 kg |
| H12.052.02.07 | 80     | 3.15     | 2.10 kg |
| H12.052.02.08 | 85     | 3.35     | 2.24 kg |
| H12.052.02.09 | 90     | 3.54     | 2.37 kg |
| H12.052.02.10 | 95     | 3.74     | 2.50 kg |
| H12.052.04.01 | 75 DX  | 2.95 DX  | 1.84 kg |
| H12.052.04.02 | 85 DX  | 3.35 DX  | 2.10 kg |
| H12.052.04.03 | 95 DX  | 3.74 DX  | 2.37 kg |
| H12.052.04.04 | 105 DX | 4.13 DX  | 2.50 kg |
| H12.052.04.05 | 115 DX | 4.53 DX  | 2.89 kg |
| H12.052.04.06 | 80 SX  | 3.15 SX  | 1.97 kg |
| H12.052.05.01 | 75 SX  | 2.95 SX  | 1.84 kg |
| H12.052.05.02 | 85 SX  | 3.35 SX  | 2.10 kg |
| H12.052.05.03 | 95 SX  | 3.74 SX  | 2.37 kg |
| H12.052.05.04 | 105 SX | 4.13 SX  | 2.50 kg |
| H12.052.05.05 | 115 SX | 4.53 SX  | 2.89 kg |
| H12.052.05.06 | 80 DX  | 3.15 DX  | 1.97 kg |



Punches H12

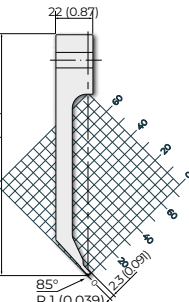
42Cr: 900-1150 N/mm<sup>2</sup> 975 kN/m max.

| H12.015.0     |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H12.015.01.01 | 100    | 3.94     | 2.63 kg |
| H12.015.02.01 | 50     | 1.97     | 1.32 kg |
| H12.015.02.02 | 55     | 2.17     | 1.45 kg |
| H12.015.02.03 | 60     | 2.36     | 1.58 kg |
| H12.015.02.04 | 65     | 2.56     | 1.71 kg |
| H12.015.02.05 | 70     | 2.76     | 1.84 kg |
| H12.015.02.06 | 75     | 2.95     | 1.97 kg |
| H12.015.02.07 | 80     | 3.15     | 2.10 kg |
| H12.015.02.08 | 85     | 3.35     | 2.24 kg |
| H12.015.02.09 | 90     | 3.54     | 2.37 kg |
| H12.015.02.10 | 95     | 3.74     | 2.50 kg |
| H12.015.04.01 | 75 DX  | 2.95 DX  | 1.84 kg |
| H12.015.04.02 | 85 DX  | 3.35 DX  | 2.10 kg |
| H12.015.04.03 | 95 DX  | 3.74 DX  | 2.37 kg |
| H12.015.04.04 | 105 DX | 4.13 DX  | 2.30 kg |
| H12.015.04.05 | 115 DX | 4.53 DX  | 2.89 kg |
| H12.015.04.06 | 80 SX  | 3.15 SX  | 1.97 kg |
| H12.015.05.01 | 75 SX  | 2.95 SX  | 1.84 kg |
| H12.015.05.02 | 85 SX  | 3.35 SX  | 2.10 kg |
| H12.015.05.03 | 95 SX  | 3.74 SX  | 2.37 kg |
| H12.015.05.04 | 105 SX | 4.13 SX  | 2.30 kg |
| H12.015.05.05 | 115 SX | 4.53 SX  | 2.89 kg |
| H12.015.05.06 | 80 DX  | 3.15 DX  | 1.97 kg |



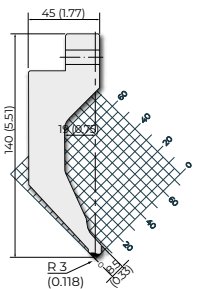
42Cr: 900-1150 N/mm<sup>2</sup> 250 kN/m max.

| H12.025.0     |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H12.025.01.01 | 100    | 3.94     | 1.36 kg |
| H12.025.02.01 | 50     | 1.97     | 0.68 kg |
| H12.025.02.02 | 55     | 2.17     | 0.75 kg |
| H12.025.02.03 | 60     | 2.36     | 0.82 kg |
| H12.025.02.04 | 65     | 2.56     | 0.88 kg |
| H12.025.02.05 | 70     | 2.76     | 0.95 kg |
| H12.025.02.06 | 75     | 2.95     | 1.02 kg |
| H12.025.02.07 | 80     | 3.15     | 1.09 kg |
| H12.025.02.08 | 85     | 3.35     | 1.16 kg |
| H12.025.02.09 | 90     | 3.54     | 1.22 kg |
| H12.025.02.10 | 95     | 3.74     | 1.29 kg |
| H12.025.04.01 | 75 DX  | 2.95 DX  | 0.95 kg |
| H12.025.04.02 | 85 DX  | 3.35 DX  | 1.09 kg |
| H12.025.04.03 | 95 DX  | 3.74 DX  | 1.22 kg |
| H12.025.04.04 | 105 DX | 4.13 DX  | 1.35 kg |
| H12.025.04.05 | 115 DX | 4.53 DX  | 1.50 kg |
| H12.025.04.06 | 80 SX  | 3.15 SX  | 1.02 kg |
| H12.025.05.01 | 75 SX  | 2.95 SX  | 0.95 kg |
| H12.025.05.02 | 85 SX  | 3.35 SX  | 1.09 kg |
| H12.025.05.03 | 95 SX  | 3.74 SX  | 1.22 kg |
| H12.025.05.04 | 105 SX | 4.13 SX  | 1.35 kg |
| H12.025.05.05 | 115 SX | 4.53 SX  | 1.50 kg |
| H12.025.05.06 | 80 DX  | 3.15 DX  | 1.02 kg |



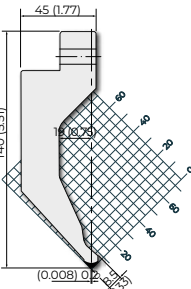
42Cr: 900-1150 N/mm<sup>2</sup> 975 kN/m max.

| H12.053.0     |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H12.053.01.01 | 100    | 3.94     | 2.65 kg |
| H12.053.02.01 | 50     | 1.97     | 1.33 kg |
| H12.053.02.02 | 55     | 2.17     | 1.46 kg |
| H12.053.02.03 | 60     | 2.36     | 1.59 kg |
| H12.053.02.04 | 65     | 2.56     | 1.72 kg |
| H12.053.02.05 | 70     | 2.76     | 1.86 kg |
| H12.053.02.06 | 75     | 2.95     | 1.99 kg |
| H12.053.02.07 | 80     | 3.15     | 2.12 kg |
| H12.053.02.08 | 85     | 3.35     | 2.25 kg |
| H12.053.02.09 | 90     | 3.54     | 2.39 kg |
| H12.053.02.10 | 95     | 3.74     | 2.52 kg |
| H12.053.04.01 | 75 DX  | 2.95 DX  | 1.86 kg |
| H12.053.04.02 | 85 DX  | 3.35 DX  | 2.12 kg |
| H12.053.04.03 | 95 DX  | 3.74 DX  | 2.39 kg |
| H12.053.04.04 | 105 DX | 4.13 DX  | 2.60 kg |
| H12.053.04.05 | 115 DX | 4.53 DX  | 2.92 kg |
| H12.053.04.06 | 80 SX  | 3.15 SX  | 1.99 kg |
| H12.053.05.01 | 75 SX  | 2.95 SX  | 1.86 kg |
| H12.053.05.02 | 85 SX  | 3.35 SX  | 2.12 kg |
| H12.053.05.03 | 95 SX  | 3.74 SX  | 2.39 kg |
| H12.053.05.04 | 105 SX | 4.13 SX  | 2.60 kg |
| H12.053.05.05 | 115 SX | 4.53 SX  | 2.92 kg |
| H12.053.05.06 | 80 DX  | 3.15 DX  | 1.99 kg |



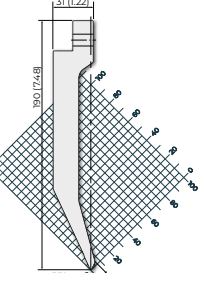
42Cr: 900-1150 N/mm<sup>2</sup> 975 kN/m max.

| H12.019.0     |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H12.019.01.01 | 100    | 3.94     | 2.60 kg |
| H12.019.02.01 | 50     | 1.97     | 1.30 kg |
| H12.019.02.02 | 55     | 2.17     | 1.43 kg |
| H12.019.02.03 | 60     | 2.36     | 1.56 kg |
| H12.019.02.04 | 65     | 2.56     | 1.69 kg |
| H12.019.02.05 | 70     | 2.76     | 1.82 kg |
| H12.019.02.06 | 75     | 2.95     | 1.95 kg |
| H12.019.02.07 | 80     | 3.15     | 2.08 kg |
| H12.019.02.08 | 85     | 3.35     | 2.21 kg |
| H12.019.02.09 | 90     | 3.54     | 2.34 kg |
| H12.019.02.10 | 95     | 3.74     | 2.47 kg |
| H12.019.04.01 | 75 DX  | 2.95 DX  | 1.82 kg |
| H12.019.04.02 | 85 DX  | 3.35 DX  | 2.08 kg |
| H12.019.04.03 | 95 DX  | 3.74 DX  | 2.34 kg |
| H12.019.04.04 | 105 DX | 4.13 DX  | 2.46 kg |
| H12.019.04.05 | 115 DX | 4.53 DX  | 2.86 kg |
| H12.019.04.06 | 80 SX  | 3.15 SX  | 1.95 kg |
| H12.019.05.01 | 75 SX  | 2.95 SX  | 1.82 kg |
| H12.019.05.02 | 85 SX  | 3.35 SX  | 2.08 kg |
| H12.019.05.03 | 95 SX  | 3.74 SX  | 2.34 kg |
| H12.019.05.04 | 105 SX | 4.13 SX  | 2.46 kg |
| H12.019.05.05 | 115 SX | 4.53 SX  | 2.86 kg |
| H12.019.05.06 | 80 DX  | 3.15 DX  | 1.95 kg |



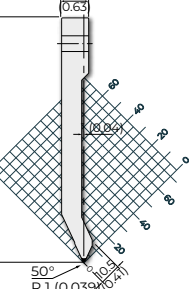
42Cr: 900-1150 N/mm<sup>2</sup> 750 kN/m max.

| H12.017.0     |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H12.017.01.01 | 100    | 3.94     | 2.76 kg |
| H12.017.02.01 | 50     | 1.97     | 1.38 kg |
| H12.017.02.02 | 55     | 2.17     | 1.52 kg |
| H12.017.02.03 | 60     | 2.36     | 1.66 kg |
| H12.017.02.04 | 65     | 2.56     | 1.79 kg |
| H12.017.02.05 | 70     | 2.76     | 1.93 kg |
| H12.017.02.06 | 75     | 2.95     | 2.07 kg |
| H12.017.02.07 | 80     | 3.15     | 2.21 kg |
| H12.017.02.08 | 85     | 3.35     | 2.35 kg |
| H12.017.02.09 | 90     | 3.54     | 2.48 kg |
| H12.017.02.10 | 95     | 3.74     | 2.62 kg |
| H12.017.04.01 | 75 DX  | 2.95 DX  | 1.93 kg |
| H12.017.04.02 | 85 DX  | 3.35 DX  | 2.21 kg |
| H12.017.04.03 | 95 DX  | 3.74 DX  | 2.48 kg |
| H12.017.04.04 | 105 DX | 4.13 DX  | 3.03 kg |
| H12.017.04.05 | 115 DX | 4.53 DX  | 3.04 kg |
| H12.017.04.06 | 80 SX  | 3.15 SX  | 2.07 kg |
| H12.017.05.01 | 75 SX  | 2.95 SX  | 1.93 kg |
| H12.017.05.02 | 85 SX  | 3.35 SX  | 2.21 kg |
| H12.017.05.03 | 95 SX  | 3.74 SX  | 2.48 kg |
| H12.017.05.04 | 105 SX | 4.13 SX  | 3.03 kg |
| H12.017.05.05 | 115 SX | 4.53 SX  | 3.04 kg |
| H12.017.05.06 | 80 DX  | 3.15 DX  | 2.07 kg |



42Cr: 900-1150 N/mm<sup>2</sup> 1000 kN/m max.

| H12.065.0     |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H12.065.01.01 | 100    | 3.94     | 1.36 kg |
| H12.065.02.01 | 50     | 1.97     | 0.68 kg |
| H12.065.02.02 | 55     | 2.17     | 0.75 kg |
| H12.065.02.03 | 60     | 2.36     | 0.82 kg |
| H12.065.02.04 | 65     | 2.56     | 0.88 kg |
| H12.065.02.05 | 70     | 2.76     | 0.95 kg |
| H12.065.02.06 | 75     | 2.95     | 1.02 kg |
| H12.065.02.07 | 80     | 3.15     | 1.09 kg |
| H12.065.02.08 | 85     | 3.35     | 1.16 kg |
| H12.065.02.09 | 90     | 3.54     | 1.22 kg |
| H12.065.02.10 | 95     | 3.74     | 1.29 kg |
| H12.065.04.01 | 75 DX  | 2.95 DX  | 0.95 kg |
| H12.065.04.02 | 85 DX  | 3.35 DX  | 1.09 kg |
| H12.065.04.03 | 95 DX  | 3.74 DX  | 1.22 kg |
| H12.065.04.04 | 105 DX | 4.13 DX  | 1.35 kg |
| H12.065.04.05 | 115 DX | 4.53 DX  | 1.50 kg |
| H12.065.04.06 | 80 SX  | 3.15 SX  | 1.02 kg |
| H12.065.05.01 | 75 SX  | 2.95 SX  | 0.95 kg |
| H12.065.05.02 | 85 SX  | 3.35 SX  | 1.09 kg |
| H12.065.05.03 | 95 SX  | 3.74 SX  | 1.22 kg |
| H12.065.05.04 | 105 SX | 4.13 SX  | 1.35 kg |
| H12.065.05.05 | 115 SX | 4.53 SX  | 1.50 kg |
| H12.065.05.06 | 80 DX  | 3.15 DX  | 1.02 kg |



Punch holders

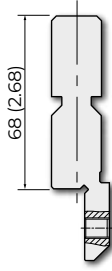


C45: 560-710 N/mm<sup>2</sup>

1000 kN/m max.

H21.003.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H21.003.01.01 | 100    | 3.94     | 1.18 kg |
| H21.003.01.03 | 200    | 7.87     | 2.36 kg |
| H21.003.02.01 | 50     | 1.97     | 0.59 kg |
| H21.003.02.02 | 55     | 2.17     | 0.65 kg |
| H21.003.02.03 | 60     | 2.36     | 0.71 kg |
| H21.003.02.04 | 65     | 2.56     | 0.77 kg |
| H21.003.02.05 | 70     | 2.76     | 0.83 kg |
| H21.003.02.06 | 75     | 2.95     | 0.89 kg |
| H21.003.02.07 | 80     | 3.15     | 0.94 kg |
| H21.003.02.08 | 85     | 3.35     | 1.00 kg |
| H21.003.02.09 | 90     | 3.54     | 1.06 kg |
| H21.003.02.10 | 95     | 3.74     | 1.12 kg |
| H21.003.04.01 | 75 DX  | 2.95 DX  | 0.83 kg |
| H21.003.04.02 | 85 DX  | 3.35 DX  | 0.94 kg |
| H21.003.04.03 | 95 DX  | 3.74 DX  | 1.06 kg |
| H21.003.04.04 | 105 DX | 4.13 DX  | 1.15 kg |
| H21.003.04.05 | 115 DX | 4.53 DX  | 1.30 kg |
| H21.003.04.06 | 80 SX  | 3.15 SX  | 0.89 kg |
| H21.003.05.01 | 75 SX  | 2.95 SX  | 0.83 kg |
| H21.003.05.02 | 85 SX  | 3.35 SX  | 0.94 kg |
| H21.003.05.03 | 95 SX  | 3.74 SX  | 1.06 kg |
| H21.003.05.04 | 105 SX | 4.13 SX  | 1.12 kg |
| H21.003.05.05 | 115 SX | 4.53 SX  | 1.30 kg |
| H21.003.05.06 | 80 DX  | 3.15 DX  | 0.89 kg |

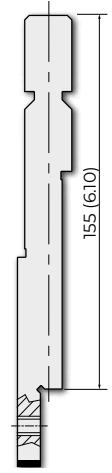


C45: 560-710 N/mm<sup>2</sup>

1000 kN/m max.

H21.002.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H21.002.01.01 | 100    | 3.94     | 2.44 kg |
| H21.002.01.03 | 200    | 7.87     | 4.88 kg |
| H21.002.02.01 | 50     | 1.97     | 1.22 kg |
| H21.002.02.02 | 55     | 2.17     | 1.34 kg |
| H21.002.02.03 | 60     | 2.36     | 1.46 kg |
| H21.002.02.04 | 65     | 2.56     | 1.59 kg |
| H21.002.02.05 | 70     | 2.76     | 1.71 kg |
| H21.002.02.06 | 75     | 2.95     | 1.83 kg |
| H21.002.02.07 | 80     | 3.15     | 1.95 kg |
| H21.002.02.08 | 85     | 3.35     | 2.07 kg |
| H21.002.02.09 | 90     | 3.54     | 2.20 kg |
| H21.002.02.10 | 95     | 3.74     | 2.32 kg |
| H21.002.04.01 | 75 DX  | 2.95 DX  | 1.71 kg |
| H21.002.04.02 | 85 DX  | 3.35 DX  | 1.95 kg |
| H21.002.04.03 | 95 DX  | 3.74 DX  | 2.20 kg |
| H21.002.04.04 | 105 DX | 4.13 DX  | 2.40 kg |
| H21.002.04.05 | 115 DX | 4.53 DX  | 2.68 kg |
| H21.002.04.06 | 80 SX  | 3.15 SX  | 1.83 kg |
| H21.002.05.01 | 75 SX  | 2.95 SX  | 1.70 kg |
| H21.002.05.02 | 85 SX  | 3.35 SX  | 1.95 kg |
| H21.002.05.03 | 95 SX  | 3.74 SX  | 2.20 kg |
| H21.002.05.04 | 105 SX | 4.13 SX  | 2.40 kg |
| H21.002.05.05 | 115 SX | 4.53 SX  | 2.68 kg |
| H21.002.05.06 | 80 DX  | 3.15 DX  | 1.83 kg |

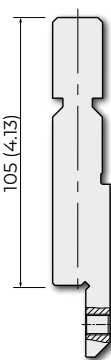


C45: 560-710 N/mm<sup>2</sup>

1000 kN/m max.

H21.004.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H21.004.01.01 | 100    | 3.94     | 1.82 kg |
| H21.004.01.03 | 200    | 7.87     | 3.64 kg |
| H21.004.02.01 | 50     | 1.97     | 0.91 kg |
| H21.004.02.02 | 55     | 2.17     | 1.00 kg |
| H21.004.02.03 | 60     | 2.36     | 1.09 kg |
| H21.004.02.04 | 65     | 2.56     | 1.18 kg |
| H21.004.02.05 | 70     | 2.76     | 1.27 kg |
| H21.004.02.06 | 75     | 2.95     | 1.37 kg |
| H21.004.02.07 | 80     | 3.15     | 1.46 kg |
| H21.004.02.08 | 85     | 3.35     | 1.55 kg |
| H21.004.02.09 | 90     | 3.54     | 1.64 kg |
| H21.004.02.10 | 95     | 3.74     | 1.73 kg |
| H21.004.04.01 | 75 DX  | 2.95 DX  | 1.27 kg |
| H21.004.04.02 | 85 DX  | 3.35 DX  | 1.46 kg |
| H21.004.04.03 | 95 DX  | 3.74 DX  | 1.64 kg |
| H21.004.04.04 | 105 DX | 4.13 DX  | 1.80 kg |
| H21.004.04.05 | 115 DX | 4.53 DX  | 2.00 kg |
| H21.004.04.06 | 80 SX  | 3.15 SX  | 1.37 kg |
| H21.004.05.01 | 75 SX  | 2.95 SX  | 1.27 kg |
| H21.004.05.02 | 85 SX  | 3.35 SX  | 1.46 kg |
| H21.004.05.03 | 95 SX  | 3.74 SX  | 1.64 kg |
| H21.004.05.04 | 105 SX | 4.13 SX  | 1.80 kg |
| H21.004.05.05 | 115 SX | 4.53 SX  | 2.00 kg |
| H21.004.05.06 | 80 DX  | 3.15 DX  | 1.37 kg |

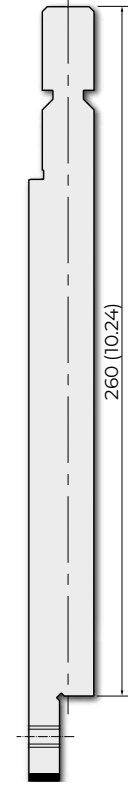


C45: 560-710 N/mm<sup>2</sup>

1000 kN/m max.

H21.005.0

|               | L (mm) | L (inch) |          |
|---------------|--------|----------|----------|
| H21.005.01.01 | 100    | 3.94     | 5.06 kg  |
| H21.005.01.03 | 200    | 7.87     | 10.12 kg |
| H21.005.02.01 | 50     | 1.97     | 2.53 kg  |
| H21.005.02.02 | 55     | 2.17     | 2.78 kg  |
| H21.005.02.03 | 60     | 2.36     | 3.04 kg  |
| H21.005.02.04 | 65     | 2.56     | 3.29 kg  |
| H21.005.02.05 | 70     | 2.76     | 3.54 kg  |
| H21.005.02.06 | 75     | 2.95     | 3.80 kg  |
| H21.005.02.07 | 80     | 3.15     | 4.05 kg  |
| H21.005.02.08 | 85     | 3.35     | 4.30 kg  |
| H21.005.02.09 | 90     | 3.54     | 4.55 kg  |
| H21.005.02.10 | 95     | 3.74     | 4.81 kg  |
| H21.005.04.01 | 75 DX  | 2.95 DX  | 3.54 kg  |
| H21.005.04.02 | 85 DX  | 3.35 DX  | 4.05 kg  |
| H21.005.04.03 | 95 DX  | 3.74 DX  | 4.55 kg  |
| H21.005.04.04 | 105 DX | 4.13 DX  | 5.00 kg  |
| H21.005.04.05 | 115 DX | 4.53 DX  | 5.57 kg  |
| H21.005.04.06 | 80 SX  | 3.15 SX  | 3.80 kg  |
| H21.005.05.01 | 75 SX  | 2.95 SX  | 3.54 kg  |
| H21.005.05.02 | 85 SX  | 3.35 SX  | 4.05 kg  |
| H21.005.05.03 | 95 SX  | 3.74 SX  | 4.55 kg  |
| H21.005.05.04 | 105 SX | 4.13 SX  | 5.00 kg  |
| H21.005.05.05 | 115 SX | 4.53 SX  | 5.57 kg  |
| H21.005.05.06 | 80 DX  | 3.15 DX  | 3.80 kg  |

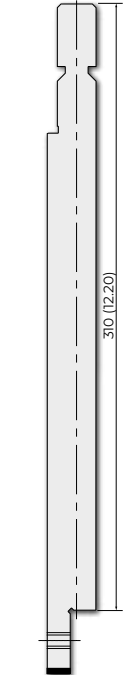


C45: 560-710 N/mm<sup>2</sup>

1000 kN/m max.

H21.010.0

|               | L (mm) | L (inch) |          |
|---------------|--------|----------|----------|
| H21.010.01.01 | 100    | 3.94     | 6.04 kg  |
| H21.010.01.03 | 200    | 7.87     | 12.00 kg |
| H21.010.02.01 | 50     | 1.97     | 3.00 kg  |
| H21.010.02.02 | 55     | 2.17     | 3.32 kg  |
| H21.010.02.03 | 60     | 2.36     | 3.60 kg  |
| H21.010.02.04 | 65     | 2.56     | 3.93 kg  |
| H21.010.02.05 | 70     | 2.76     | 4.23 kg  |
| H21.010.02.06 | 75     | 2.95     | 4.53 kg  |
| H21.010.02.07 | 80     | 3.15     | 4.83 kg  |
| H21.010.02.08 | 85     | 3.35     | 5.13 kg  |
| H21.010.02.09 | 90     | 3.54     | 5.44 kg  |
| H21.010.02.10 | 95     | 3.74     | 5.74 kg  |
| H21.010.04.01 | 75 DX  | 2.95 DX  | 4.23 kg  |
| H21.010.04.02 | 85 DX  | 3.35 DX  | 4.83 kg  |
| H21.010.04.03 | 95 DX  | 3.74 DX  | 5.44 kg  |
| H21.010.04.04 | 105 DX | 4.13 DX  | 6.10 kg  |
| H21.010.04.05 | 115 DX | 4.53 DX  | 6.64 kg  |
| H21.010.04.06 | 80 SX  | 3.15 SX  | 4.53 kg  |
| H21.010.05.01 | 75 SX  | 2.95 SX  | 4.23 kg  |
| H21.010.05.02 | 85 SX  | 3.35 SX  | 4.83 kg  |
| H21.010.05.03 | 95 SX  | 3.74 SX  | 5.44 kg  |
| H21.010.05.04 | 105 SX | 4.13 SX  | 6.10 kg  |
| H21.010.05.05 | 115 SX | 4.53 SX  | 6.64 kg  |
| H21.010.05.06 | 80 DX  | 3.15 DX  | 4.53 kg  |

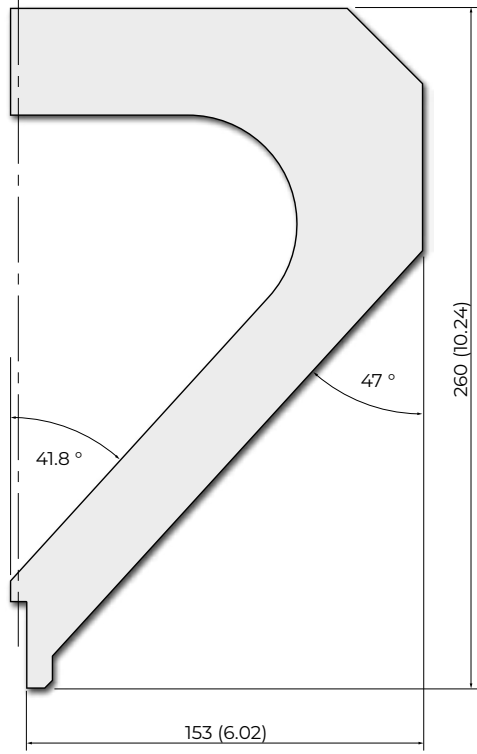


C45: 560-710 N/mm<sup>2</sup>

600 kN/m max.

H22.006.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H22.006.01.01 | 100    | 3.94     | 10.3 kg |
| H22.006.02.01 | 50     | 1.97     | 5.15 kg |
| H22.006.02.02 | 55     | 2.17     | 5.67 kg |
| H22.006.02.03 | 60     | 2.36     | 6.18 kg |
| H22.006.02.04 | 65     | 2.56     | 6.70 kg |
| H22.006.02.05 | 70     | 2.76     | 7.21 kg |
| H22.006.02.06 | 75     | 2.95     | 7.73 kg |
| H22.006.02.07 | 80     | 3.15     | 8.24 kg |
| H22.006.02.08 | 85     | 3.35     | 8.76 kg |
| H22.006.02.09 | 90     | 3.54     | 9.27 kg |
| H22.006.02.10 | 95     | 3.74     | 9.79 kg |

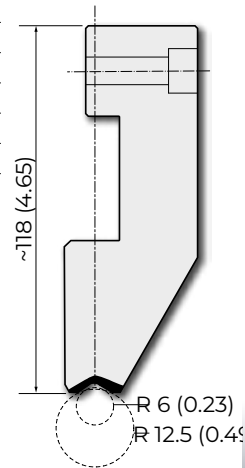


Radius tools

C45: 560-710 N/mm² 1000 kN/m max.

H22.013.0

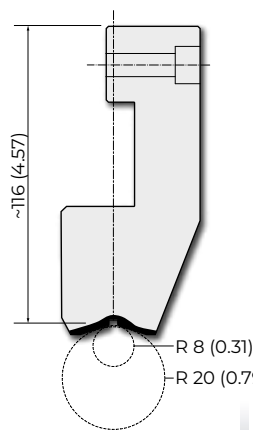
|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H22.013.01.01 | 100    | 3.94     | 2.82 kg |
| H22.013.02.01 | 50     | 1.97     | 1.41 kg |
| H22.013.02.02 | 55     | 2.17     | 1.55 kg |
| H22.013.02.03 | 60     | 2.36     | 1.69 kg |
| H22.013.02.04 | 65     | 2.56     | 1.83 kg |
| H22.013.02.05 | 70     | 2.76     | 1.97 kg |
| H22.013.02.06 | 75     | 2.95     | 2.12 kg |
| H22.013.02.07 | 80     | 3.15     | 2.26 kg |
| H22.013.02.08 | 85     | 3.35     | 2.40 kg |
| H22.013.02.09 | 90     | 3.54     | 2.54 kg |
| H22.013.02.10 | 95     | 3.74     | 2.68 kg |



C45: 560-710 N/mm² 1000 kN/m max.

H22.014.0

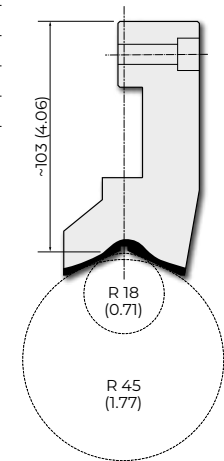
|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H22.014.01.01 | 100    | 3.94     | 3.06 kg |
| H22.014.02.01 | 50     | 1.97     | 1.53 kg |
| H22.014.02.02 | 55     | 2.17     | 1.68 kg |
| H22.014.02.03 | 60     | 2.36     | 1.83 kg |
| H22.014.02.04 | 65     | 2.56     | 1.98 kg |
| H22.014.02.05 | 70     | 2.76     | 2.14 kg |
| H22.014.02.06 | 75     | 2.95     | 2.29 kg |
| H22.014.02.07 | 80     | 3.15     | 2.44 kg |
| H22.014.02.08 | 85     | 3.35     | 2.59 kg |
| H22.014.02.09 | 90     | 3.54     | 2.75 kg |
| H22.014.02.10 | 95     | 3.74     | 2.90 kg |



C45: 560-710 N/mm² 1000 kN/m max.

H22.015.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H22.015.01.01 | 100    | 3.94     | 3.28 kg |
| H22.015.02.01 | 50     | 1.97     | 1.64 kg |
| H22.015.02.02 | 55     | 2.17     | 1.80 kg |
| H22.015.02.03 | 60     | 2.36     | 1.97 kg |
| H22.015.02.04 | 65     | 2.56     | 2.13 kg |
| H22.015.02.05 | 70     | 2.76     | 2.30 kg |
| H22.015.02.06 | 75     | 2.95     | 2.46 kg |
| H22.015.02.07 | 80     | 3.15     | 2.62 kg |
| H22.015.02.08 | 85     | 3.35     | 2.79 kg |
| H22.015.02.09 | 90     | 3.54     | 2.95 kg |
| H22.015.02.10 | 95     | 3.74     | 3.12 kg |





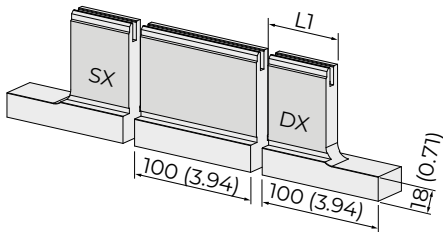
DIES ROLLERI HÄMMERLE-BYSTRONIC

EXPLANATION

|             |         |
|-------------|---------|
| Tangs       | 20      |
| DIES        |         |
| Dies Holder | 21      |
| H41         | 22      |
| H31         | 23 - 27 |

STANDARD TANG

H31 - H41



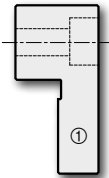
Dies holders



C45: 560-710 N/mm<sup>2</sup>

H61.100.01 / H61.500.01

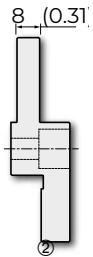
|            | L (mm) | L (inch) |         |
|------------|--------|----------|---------|
| H61.100.01 | 100    | 3.94     | 0.63 kg |
| H61.500.01 | 500    | 19.68    | 3.15 kg |



C45: 560-710 N/mm<sup>2</sup>

H61.100.02 / H61.500.02

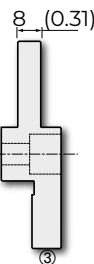
|            | L (mm) | L (inch) |         |
|------------|--------|----------|---------|
| H61.100.02 | 100    | 3.94     | 0.70 kg |
| H61.500.02 | 500    | 19.68    | 3.50 kg |



C45: 560-710 N/mm<sup>2</sup>

H61.100.03 / H61.500.03

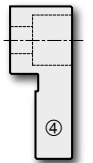
|            | L (mm) | L (inch) |         |
|------------|--------|----------|---------|
| H61.100.03 | 100    | 3.94     | 0.70 kg |
| H61.500.03 | 500    | 19.68    | 3.50 kg |



C45: 560-710 N/mm<sup>2</sup>

H61.100.04 / H61.500.04

|            | L (mm) | L (inch) |         |
|------------|--------|----------|---------|
| H61.100.04 | 100    | 3.94     | 0.63 kg |
| H61.500.04 | 500    | 19.68    | 3.15 kg |



C45: 560-710 N/mm<sup>2</sup>

H61.100.05 / H61.500.05

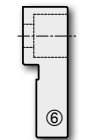
|            | L (mm) | L (inch) |         |
|------------|--------|----------|---------|
| H61.100.05 | 100    | 3.94     | 0.30 kg |
| H61.500.05 | 500    | 19.68    | 1.50 kg |



C45: 560-710 N/mm<sup>2</sup>

H61.100.06 / H61.500.06

|            | L (mm) | L (inch) |         |
|------------|--------|----------|---------|
| H61.100.06 | 100    | 3.94     | 0.63 kg |
| H61.500.06 | 500    | 19.68    | 3.15 kg |



C45: 560-710 N/mm<sup>2</sup>

H61.100.07

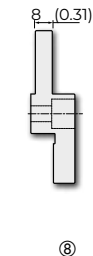
|            | L (mm) | L (inch) |         |
|------------|--------|----------|---------|
| H61.100.07 | 100    | 3.94     | 0.65 kg |



C45: 560-710 N/mm<sup>2</sup>

H61.100.08 / H61.500.08

|            | L (mm) | L (inch) |         |
|------------|--------|----------|---------|
| H61.100.08 | 100    | 3.94     | 0.70 kg |
| H61.500.08 | 500    | 19.68    | 3.50 kg |

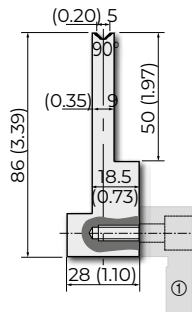


## Dies H41

42Cr: 900-1150 N/mm<sup>2</sup> 1000 kN/m max.

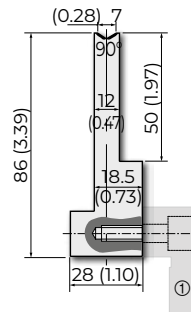
## H41.005.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H41.005.01.01 | 100    | 3.94     | 0.94 kg |
| H41.005.02.01 | 50 SX  | 1.97 SX  | 0.71 kg |
| H41.005.02.02 | 55 DX  | 2.17 DX  | 0.71 kg |
| H41.005.02.03 | 60 DX  | 2.36 DX  | 0.75 kg |
| H41.005.02.04 | 65 DX  | 2.56 DX  | 0.75 kg |
| H41.005.02.05 | 70 DX  | 2.76 DX  | 0.75 kg |
| H41.005.02.06 | 75 DX  | 2.95 DX  | 0.85 kg |
| H41.005.02.07 | 80 DX  | 3.15 DX  | 0.85 kg |
| H41.005.02.08 | 85 DX  | 3.35 DX  | 0.85 kg |
| H41.005.02.09 | 90 DX  | 3.54 DX  | 0.94 kg |
| H41.005.02.10 | 95 DX  | 3.74 DX  | 0.94 kg |
| H41.005.03.01 | 50 DX  | 1.97 DX  | 0.71 kg |
| H41.005.03.02 | 55 SX  | 2.17 SX  | 0.71 kg |
| H41.005.03.03 | 60 SX  | 2.36 SX  | 0.75 kg |
| H41.005.03.04 | 65 SX  | 2.56 SX  | 0.75 kg |
| H41.005.03.05 | 70 SX  | 2.76 SX  | 0.75 kg |
| H41.005.03.06 | 75 SX  | 2.95 SX  | 0.85 kg |
| H41.005.03.07 | 80 SX  | 3.15 SX  | 0.85 kg |
| H41.005.03.08 | 85 SX  | 3.35 SX  | 0.85 kg |
| H41.005.03.09 | 90 SX  | 3.54 SX  | 0.94 kg |
| H41.005.03.10 | 95 SX  | 3.74 SX  | 0.94 kg |

42Cr: 900-1150 N/mm<sup>2</sup> 1000 kN/m max.

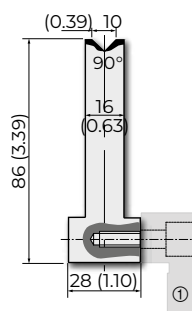
## H41.007.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H41.007.01.01 | 100    | 3.94     | 1.12 kg |
| H41.007.02.01 | 50 SX  | 1.97 SX  | 0.84 kg |
| H41.007.02.02 | 55 DX  | 2.17 DX  | 0.84 kg |
| H41.007.02.03 | 60 DX  | 2.36 DX  | 0.90 kg |
| H41.007.02.04 | 65 DX  | 2.56 DX  | 0.90 kg |
| H41.007.02.05 | 70 DX  | 2.76 DX  | 0.90 kg |
| H41.007.02.06 | 75 DX  | 2.95 DX  | 1.01 kg |
| H41.007.02.07 | 80 DX  | 3.15 DX  | 1.01 kg |
| H41.007.02.08 | 85 DX  | 3.35 DX  | 1.01 kg |
| H41.007.02.09 | 90 DX  | 3.54 DX  | 1.12 kg |
| H41.007.02.10 | 95 DX  | 3.74 DX  | 1.12 kg |
| H41.007.03.01 | 50 DX  | 1.97 DX  | 0.84 kg |
| H41.007.03.02 | 55 SX  | 2.17 SX  | 0.84 kg |
| H41.007.03.03 | 60 SX  | 2.36 SX  | 0.90 kg |
| H41.007.03.04 | 65 SX  | 2.56 SX  | 0.90 kg |
| H41.007.03.05 | 70 SX  | 2.76 SX  | 0.90 kg |
| H41.007.03.06 | 75 SX  | 2.95 SX  | 1.01 kg |
| H41.007.03.07 | 80 SX  | 3.15 SX  | 1.01 kg |
| H41.007.03.08 | 85 SX  | 3.35 SX  | 1.01 kg |
| H41.007.03.09 | 90 SX  | 3.54 SX  | 1.12 kg |
| H41.007.03.10 | 95 SX  | 3.74 SX  | 1.12 kg |

42Cr: 900-1150 N/mm<sup>2</sup> 1000 kN/m max.

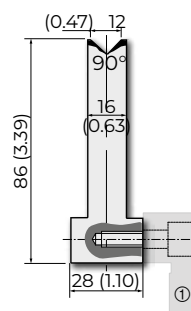
## H41.010.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H41.010.01.01 | 100    | 3.94     | 1.22 kg |
| H41.010.02.01 | 50 SX  | 1.97 SX  | 0.92 kg |
| H41.010.02.02 | 55 DX  | 2.17 DX  | 0.92 kg |
| H41.010.02.03 | 60 DX  | 2.36 DX  | 0.98 kg |
| H41.010.02.04 | 65 DX  | 2.56 DX  | 0.98 kg |
| H41.010.02.05 | 70 DX  | 2.76 DX  | 0.98 kg |
| H41.010.02.06 | 75 DX  | 2.95 DX  | 1.10 kg |
| H41.010.02.07 | 80 DX  | 3.15 DX  | 1.10 kg |
| H41.010.02.08 | 85 DX  | 3.35 DX  | 1.10 kg |
| H41.010.02.09 | 90 DX  | 3.54 DX  | 1.22 kg |
| H41.010.02.10 | 95 DX  | 3.74 DX  | 1.22 kg |
| H41.010.03.01 | 50 DX  | 1.97 DX  | 0.92 kg |
| H41.010.03.02 | 55 SX  | 2.17 SX  | 0.92 kg |
| H41.010.03.03 | 60 SX  | 2.36 SX  | 0.98 kg |
| H41.010.03.04 | 65 SX  | 2.56 SX  | 0.98 kg |
| H41.010.03.05 | 70 SX  | 2.76 SX  | 0.98 kg |
| H41.010.03.06 | 75 SX  | 2.95 SX  | 1.10 kg |
| H41.010.03.07 | 80 SX  | 3.15 SX  | 1.10 kg |
| H41.010.03.08 | 85 SX  | 3.35 SX  | 1.10 kg |
| H41.010.03.09 | 90 SX  | 3.54 SX  | 1.22 kg |
| H41.010.03.10 | 95 SX  | 3.74 SX  | 1.22 kg |

42Cr: 900-1150 N/mm<sup>2</sup> 1000 kN/m max.

## H41.012.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H41.012.01.01 | 100    | 3.94     | 1.20 kg |
| H41.012.02.01 | 50 SX  | 1.97 SX  | 0.90 kg |
| H41.012.02.02 | 55 DX  | 2.17 DX  | 0.90 kg |
| H41.012.02.03 | 60 DX  | 2.36 DX  | 0.96 kg |
| H41.012.02.04 | 65 DX  | 2.56 DX  | 0.96 kg |
| H41.012.02.05 | 70 DX  | 2.76 DX  | 0.96 kg |
| H41.012.02.06 | 75 DX  | 2.95 DX  | 1.08 kg |
| H41.012.02.07 | 80 DX  | 3.15 DX  | 1.08 kg |
| H41.012.02.08 | 85 DX  | 3.35 DX  | 1.08 kg |
| H41.012.02.09 | 90 DX  | 3.54 DX  | 1.20 kg |
| H41.012.02.10 | 95 DX  | 3.74 DX  | 1.20 kg |
| H41.012.03.01 | 50 DX  | 1.97 DX  | 0.90 kg |
| H41.012.03.02 | 55 SX  | 2.17 SX  | 0.90 kg |
| H41.012.03.03 | 60 SX  | 2.36 SX  | 0.96 kg |
| H41.012.03.04 | 65 SX  | 2.56 SX  | 0.96 kg |
| H41.012.03.05 | 70 SX  | 2.76 SX  | 0.96 kg |
| H41.012.03.06 | 75 SX  | 2.95 SX  | 1.08 kg |
| H41.012.03.07 | 80 SX  | 3.15 SX  | 1.08 kg |
| H41.012.03.08 | 85 SX  | 3.35 SX  | 1.08 kg |
| H41.012.03.09 | 90 SX  | 3.54 SX  | 1.20 kg |
| H41.012.03.10 | 95 SX  | 3.74 SX  | 1.20 kg |

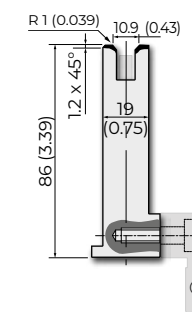


## Dies H31

42Cr: 900-1150 N/mm<sup>2</sup> 550 kN/m max.

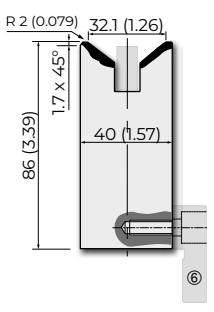
## H31.010.2

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.010.21.01 | 100    | 3.94     | 1.07 kg |
| H31.010.22.01 | 50 SX  | 1.97 SX  | 0.80 kg |
| H31.010.22.02 | 55 DX  | 2.17 DX  | 0.80 kg |
| H31.010.22.03 | 60 DX  | 2.36 DX  | 0.86 kg |
| H31.010.22.04 | 65 DX  | 2.56 DX  | 0.86 kg |
| H31.010.22.05 | 70 DX  | 2.76 DX  | 0.86 kg |
| H31.010.22.06 | 75 DX  | 2.95 DX  | 0.96 kg |
| H31.010.22.07 | 80 DX  | 3.15 DX  | 0.96 kg |
| H31.010.22.08 | 85 DX  | 3.35 DX  | 0.96 kg |
| H31.010.22.09 | 90 DX  | 3.54 DX  | 1.07 kg |
| H31.010.22.10 | 95 DX  | 3.74 DX  | 1.07 kg |
| H31.010.23.01 | 50 DX  | 1.97 DX  | 0.80 kg |
| H31.010.23.02 | 55 SX  | 2.17 SX  | 0.80 kg |
| H31.010.23.03 | 60 SX  | 2.36 SX  | 0.86 kg |
| H31.010.23.04 | 65 SX  | 2.56 SX  | 0.86 kg |
| H31.010.23.05 | 70 SX  | 2.76 SX  | 0.86 kg |
| H31.010.23.06 | 75 SX  | 2.95 SX  | 0.96 kg |
| H31.010.23.07 | 80 SX  | 3.15 SX  | 0.96 kg |
| H31.010.23.08 | 85 SX  | 3.35 SX  | 0.96 kg |
| H31.010.23.09 | 90 SX  | 3.54 SX  | 1.07 kg |
| H31.010.23.10 | 95 SX  | 3.74 SX  | 1.07 kg |

C45: 560-710 N/mm<sup>2</sup> 1200 kN/m max.

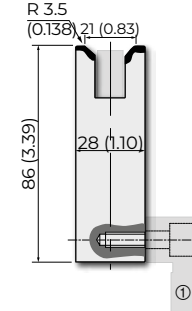
## H31.032.1

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.032.11.01 | 100    | 3.94     | 2.17 kg |
| H31.032.12.01 | 50 SX  | 1.97 SX  | 1.63 kg |
| H31.032.12.02 | 55 DX  | 2.17 DX  | 1.63 kg |
| H31.032.12.03 | 60 DX  | 2.36 DX  | 1.74 kg |
| H31.032.12.04 | 65 DX  | 2.56 DX  | 1.74 kg |
| H31.032.12.05 | 70 DX  | 2.76 DX  | 1.74 kg |
| H31.032.12.06 | 75 DX  | 2.95 DX  | 1.95 kg |
| H31.032.12.07 | 80 DX  | 3.15 DX  | 1.95 kg |
| H31.032.12.08 | 85 DX  | 3.35 DX  | 1.95 kg |
| H31.032.12.09 | 90 DX  | 3.54 DX  | 2.17 kg |
| H31.032.12.10 | 95 DX  | 3.74 DX  | 2.17 kg |
| H31.032.13.01 | 50 DX  | 1.97 DX  | 1.63 kg |
| H31.032.13.02 | 55 SX  | 2.17 SX  | 1.63 kg |
| H31.032.13.03 | 60 SX  | 2.36 SX  | 1.74 kg |
| H31.032.13.04 | 65 SX  | 2.56 SX  | 1.74 kg |
| H31.032.13.05 | 70 SX  | 2.76 SX  | 1.74 kg |
| H31.032.13.06 | 75 SX  | 2.95 SX  | 1.95 kg |
| H31.032.13.07 | 80 SX  | 3.15 SX  | 1.95 kg |
| H31.032.13.08 | 85 SX  | 3.35 SX  | 1.95 kg |
| H31.032.13.09 | 90 SX  | 3.54 SX  | 2.17 kg |
| H31.032.13.10 | 95 SX  | 3.74 SX  | 2.17 kg |

C45: 560-710 N/mm<sup>2</sup> 500 kN/m max.

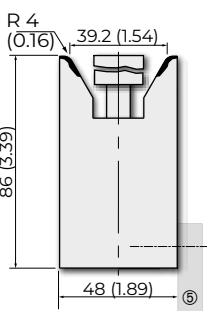
## H31.021.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.021.01.01 | 100    | 3.94     | 1.51 kg |
| H31.021.02.01 | 50 SX  | 1.97 SX  | 1.13 kg |
| H31.021.02.02 | 55 DX  | 2.17 DX  | 1.13 kg |
| H31.021.02.03 | 60 DX  | 2.36 DX  | 1.21 kg |
| H31.021.02.04 | 65 DX  | 2.56 DX  | 1.21 kg |
| H31.021.02.05 | 70 DX  | 2.76 DX  | 1.21 kg |
| H31.021.02.06 | 75 DX  | 2.95 DX  | 1.36 kg |
| H31.021.02.07 | 80 DX  | 3.15 DX  | 1.36 kg |
| H31.021.02.08 | 85 DX  | 3.35 DX  | 1.36 kg |
| H31.021.02.09 | 90 DX  | 3.54 DX  | 1.51 kg |
| H31.021.02.10 | 95 DX  | 3.74 DX  | 1.51 kg |
| H31.021.03.01 | 50 DX  | 1.97 DX  | 1.13 kg |
| H31.021.03.02 | 55 SX  | 2.17 SX  | 1.13 kg |
| H31.021.03.03 | 60 SX  | 2.36 SX  | 1.21 kg |
| H31.021.03.04 | 65 SX  | 2.56 SX  | 1.21 kg |
| H31.021.03.05 | 70 SX  | 2.76 SX  | 1.21 kg |
| H31.021.03.06 | 75 SX  | 2.95 SX  | 1.36 kg |
| H31.021.03.07 | 80 SX  | 3.15 SX  | 1.36 kg |
| H31.021.03.08 | 85 SX  | 3.35 SX  | 1.36 kg |
| H31.021.03.09 | 90 SX  | 3.54 SX  | 1.51 kg |
| H31.021.03.10 | 95 SX  | 3.74 SX  | 1.51 kg |

C45: 560-710 N/mm<sup>2</sup> 750 kN/m max.

## H31.040.1

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.040.11.01 | 100    | 3.94     | 2.66 kg |
| H31.040.12.01 | 50 SX  | 1.97 SX  | 2.00 kg |
| H31.040.12.02 | 55 DX  | 2.17 DX  | 2.00 kg |
| H31.040.12.03 | 60 DX  | 2.36 DX  | 2.13 kg |
| H31.040.12.04 | 65 DX  | 2.56 DX  | 2.13 kg |
| H31.040.12.05 | 70 DX  | 2.76 DX  | 2.13 kg |
| H31.040.12.06 | 75 DX  | 2.95 DX  | 2.39 kg |
| H31.040.12.07 | 80 DX  | 3.15 DX  | 2.39 kg |
| H31.040.12.08 | 85 DX  | 3.35 DX  | 2.39 kg |
| H31.040.12.09 | 90 DX  | 3.54 DX  | 2.66 kg |
| H31.040.12.10 | 95 DX  | 3.74 DX  | 2.66 kg |
| H31.040.13.01 | 50 DX  | 1.97 DX  | 2.00 kg |
| H31.040.13.02 | 55 SX  | 2.17 SX  | 2.00 kg |
| H31.040.13.03 | 60 SX  | 2.36 SX  | 2.13 kg |
| H31.040.13.04 | 65 SX  | 2.56 SX  | 2.13 kg |
| H31.040.13.05 | 70 SX  | 2.76 SX  | 2.13 kg |
| H31.040.13.06 | 75 SX  | 2.95 SX  | 2.39 kg |
| H31.040.13.07 | 80 SX  | 3.15 SX  | 2.39 kg |
| H31.040.13.08 | 85 SX  | 3.35 SX  | 2.39 kg |
| H31.040.13.09 | 90 SX  | 3.54 SX  | 2.66 kg |
| H31.040.13.10 | 95 SX  | 3.74 SX  | 2.66 kg |



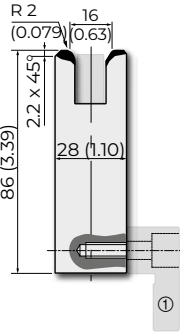


C45: 560-710 N/mm<sup>2</sup>

500 kN/m max.

H31.016.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.016.01.01 | 100    | 3.94     | 1.51 kg |
| H31.016.02.01 | 50 SX  | 1.97 SX  | 1.13 kg |
| H31.016.02.02 | 55 DX  | 2.17 DX  | 1.13 kg |
| H31.016.02.03 | 60 DX  | 2.36 DX  | 1.21 kg |
| H31.016.02.04 | 65 DX  | 2.56 DX  | 1.21 kg |
| H31.016.02.05 | 70 DX  | 2.76 DX  | 1.21 kg |
| H31.016.02.06 | 75 DX  | 2.95 DX  | 1.36 kg |
| H31.016.02.07 | 80 DX  | 3.15 DX  | 1.36 kg |
| H31.016.02.08 | 85 DX  | 3.35 DX  | 1.36 kg |
| H31.016.02.09 | 90 DX  | 3.54 DX  | 1.51 kg |
| H31.016.02.10 | 95 DX  | 3.74 DX  | 1.51 kg |
| H31.016.03.01 | 50 DX  | 1.97 DX  | 1.13 kg |
| H31.016.03.02 | 55 SX  | 2.17 SX  | 1.13 kg |
| H31.016.03.03 | 60 SX  | 2.36 SX  | 1.21 kg |
| H31.016.03.04 | 65 SX  | 2.56 SX  | 1.21 kg |
| H31.016.03.05 | 70 SX  | 2.76 SX  | 1.21 kg |
| H31.016.03.06 | 75 SX  | 2.95 SX  | 1.36 kg |
| H31.016.03.07 | 80 SX  | 3.15 SX  | 1.36 kg |
| H31.016.03.08 | 85 SX  | 3.35 SX  | 1.36 kg |
| H31.016.03.09 | 90 SX  | 3.54 SX  | 1.51 kg |
| H31.016.03.10 | 95 SX  | 3.74 SX  | 1.51 kg |

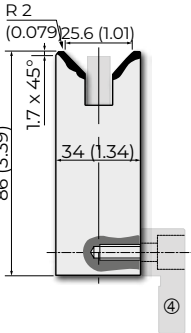


C45: 560-710 N/mm<sup>2</sup>

750 kN/m max.

H31.024.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.024.01.01 | 100    | 3.94     | 1.81 kg |
| H31.024.02.01 | 50 SX  | 1.97 SX  | 1.36 kg |
| H31.024.02.02 | 55 DX  | 2.17 DX  | 1.36 kg |
| H31.024.02.03 | 60 DX  | 2.36 DX  | 1.45 kg |
| H31.024.02.04 | 65 DX  | 2.56 DX  | 1.45 kg |
| H31.024.02.05 | 70 DX  | 2.76 DX  | 1.45 kg |
| H31.024.02.06 | 75 DX  | 2.95 DX  | 1.63 kg |
| H31.024.02.07 | 80 DX  | 3.15 DX  | 1.63 kg |
| H31.024.02.08 | 85 DX  | 3.35 DX  | 1.63 kg |
| H31.024.02.09 | 90 DX  | 3.54 DX  | 1.81 kg |
| H31.024.02.10 | 95 DX  | 3.74 DX  | 1.81 kg |
| H31.024.03.01 | 50 DX  | 1.97 DX  | 1.36 kg |
| H31.024.03.02 | 55 SX  | 2.17 SX  | 1.36 kg |
| H31.024.03.03 | 60 SX  | 2.36 SX  | 1.45 kg |
| H31.024.03.04 | 65 SX  | 2.56 SX  | 1.45 kg |
| H31.024.03.05 | 70 SX  | 2.76 SX  | 1.45 kg |
| H31.024.03.06 | 75 SX  | 2.95 SX  | 1.63 kg |
| H31.024.03.07 | 80 SX  | 3.15 SX  | 1.63 kg |
| H31.024.03.08 | 85 SX  | 3.35 SX  | 1.63 kg |
| H31.024.03.09 | 90 SX  | 3.54 SX  | 1.81 kg |
| H31.024.03.10 | 95 SX  | 3.74 SX  | 1.81 kg |

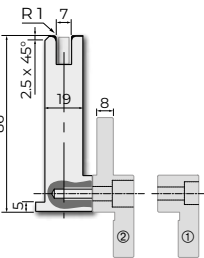


42Cr: 900-1150 N/mm<sup>2</sup>

500 kN/m max.

H31.007.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.007.01.01 | 100    | 3.94     | 1.24 kg |
| H31.007.02.01 | 50 SX  | 1.97 SX  | 0.93 kg |
| H31.007.02.02 | 55 DX  | 2.17 DX  | 0.93 kg |
| H31.007.02.03 | 60 DX  | 2.36 DX  | 0.99 kg |
| H31.007.02.04 | 65 DX  | 2.56 DX  | 0.99 kg |
| H31.007.02.05 | 70 DX  | 2.76 DX  | 0.99 kg |
| H31.007.02.06 | 75 DX  | 2.95 DX  | 1.12 kg |
| H31.007.02.07 | 80 DX  | 3.15 DX  | 1.12 kg |
| H31.007.02.08 | 85 DX  | 3.35 DX  | 1.12 kg |
| H31.007.02.09 | 90 DX  | 3.54 DX  | 1.24 kg |
| H31.007.02.10 | 95 DX  | 3.74 DX  | 1.24 kg |
| H31.007.03.01 | 50 DX  | 1.97 DX  | 0.93 kg |
| H31.007.03.02 | 55 SX  | 2.17 SX  | 0.93 kg |
| H31.007.03.03 | 60 SX  | 2.36 SX  | 0.99 kg |
| H31.007.03.04 | 65 SX  | 2.56 SX  | 0.99 kg |
| H31.007.03.05 | 70 SX  | 2.76 SX  | 0.99 kg |
| H31.007.03.06 | 75 SX  | 2.95 SX  | 1.12 kg |
| H31.007.03.07 | 80 SX  | 3.15 SX  | 1.12 kg |
| H31.007.03.08 | 85 SX  | 3.35 SX  | 1.12 kg |
| H31.007.03.09 | 90 SX  | 3.54 SX  | 1.24 kg |
| H31.007.03.10 | 95 SX  | 3.74 SX  | 1.24 kg |

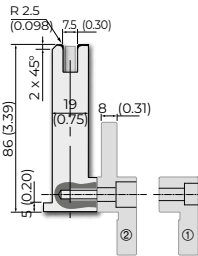


42Cr: 900-1150 N/mm<sup>2</sup>

500 kN/m max.

H31.007.2

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.007.21.01 | 100    | 3.94     | 1.23 kg |
| H31.007.22.01 | 50 SX  | 1.97 SX  | 0.92 kg |
| H31.007.22.02 | 55 DX  | 2.17 DX  | 0.92 kg |
| H31.007.22.03 | 60 DX  | 2.36 DX  | 0.98 kg |
| H31.007.22.04 | 65 DX  | 2.56 DX  | 0.98 kg |
| H31.007.22.05 | 70 DX  | 2.76 DX  | 0.98 kg |
| H31.007.22.06 | 75 DX  | 2.95 DX  | 1.11 kg |
| H31.007.22.07 | 80 DX  | 3.15 DX  | 1.11 kg |
| H31.007.22.08 | 85 DX  | 3.35 DX  | 1.11 kg |
| H31.007.22.09 | 90 DX  | 3.54 DX  | 1.23 kg |
| H31.007.22.10 | 95 DX  | 3.74 DX  | 1.23 kg |
| H31.007.23.01 | 50 DX  | 1.97 DX  | 0.92 kg |
| H31.007.23.02 | 55 SX  | 2.17 SX  | 0.92 kg |
| H31.007.23.03 | 60 SX  | 2.36 SX  | 0.98 kg |
| H31.007.23.04 | 65 SX  | 2.56 SX  | 0.98 kg |
| H31.007.23.05 | 70 SX  | 2.76 SX  | 0.98 kg |
| H31.007.23.06 | 75 SX  | 2.95 SX  | 1.11 kg |
| H31.007.23.07 | 80 SX  | 3.15 SX  | 1.11 kg |
| H31.007.23.08 | 85 SX  | 3.35 SX  | 1.11 kg |
| H31.007.23.09 | 90 SX  | 3.54 SX  | 1.23 kg |
| H31.007.23.10 | 95 SX  | 3.74 SX  | 1.23 kg |

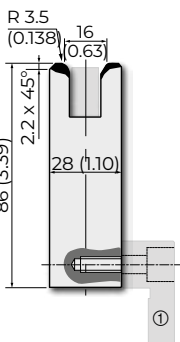


C45: 560-710 N/mm<sup>2</sup>

500 kN/m max.

H31.016.1

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.016.11.01 | 100    | 3.94     | 1.55 kg |
| H31.016.12.01 | 50 SX  | 1.97 SX  | 1.16 kg |
| H31.016.12.02 | 55 DX  | 2.17 DX  | 1.16 kg |
| H31.016.12.03 | 60 DX  | 2.36 DX  | 1.24 kg |
| H31.016.12.04 | 65 DX  | 2.56 DX  | 1.24 kg |
| H31.016.12.05 | 70 DX  | 2.76 DX  | 1.24 kg |
| H31.016.12.06 | 75 DX  | 2.95 DX  | 1.40 kg |
| H31.016.12.07 | 80 DX  | 3.15 DX  | 1.40 kg |
| H31.016.12.08 | 85 DX  | 3.35 DX  | 1.40 kg |
| H31.016.12.09 | 90 DX  | 3.54 DX  | 1.55 kg |
| H31.016.12.10 | 95 DX  | 3.74 DX  | 1.55 kg |
| H31.016.13.01 | 50 DX  | 1.97 DX  | 1.16 kg |
| H31.016.13.02 | 55 SX  | 2.17 SX  | 1.16 kg |
| H31.016.13.03 | 60 SX  | 2.36 SX  | 1.24 kg |
| H31.016.13.04 | 65 SX  | 2.56 SX  | 1.24 kg |
| H31.016.13.05 | 70 SX  | 2.76 SX  | 1.24 kg |
| H31.016.13.06 | 75 SX  | 2.95 SX  | 1.40 kg |
| H31.016.13.07 | 80 SX  | 3.15 SX  | 1.40 kg |
| H31.016.13.08 | 85 SX  | 3.35 SX  | 1.40 kg |
| H31.016.13.09 | 90 SX  | 3.54 SX  | 1.55 kg |
| H31.016.13.10 | 95 SX  | 3.74 SX  | 1.55 kg |

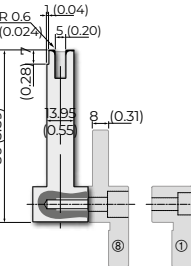


42Cr: 900-1150 N/mm<sup>2</sup>

250 kN/m max.

H31.005.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.005.01.01 | 100    | 3.94     | 1.07 kg |
| H31.005.02.01 | 50 SX  | 1.97 SX  | 0.80 kg |
| H31.005.02.02 | 55 DX  | 2.17 DX  | 0.80 kg |
| H31.005.02.03 | 60 DX  | 2.36 DX  | 0.86 kg |
| H31.005.02.04 | 65 DX  | 2.56 DX  | 0.86 kg |
| H31.005.02.05 | 70 DX  | 2.76 DX  | 0.86 kg |
| H31.005.02.06 | 75 DX  | 2.95 DX  | 0.96 kg |
| H31.005.02.07 | 80 DX  | 3.15 DX  | 0.96 kg |
| H31.005.02.08 | 85 DX  | 3.35 DX  | 0.96 kg |
| H31.005.02.09 | 90 DX  | 3.54 DX  | 1.07 kg |
| H31.005.02.10 | 95 DX  | 3.74 DX  | 1.07 kg |
| H31.005.03.01 | 50 DX  | 1.97 DX  | 0.80 kg |
| H31.005.03.02 | 55 SX  | 2.17 SX  | 0.80 kg |
| H31.005.03.03 | 60 SX  | 2.36 SX  | 0.86 kg |
| H31.005.03.04 | 65 SX  | 2.56 SX  | 0.86 kg |
| H31.005.03.05 | 70 SX  | 2.76 SX  | 0.86 kg |
| H31.005.03.06 | 75 SX  | 2.95 SX  | 0.96 kg |
| H31.005.03.07 | 80 SX  | 3.15 SX  | 0.96 kg |
| H31.005.03.08 | 85 SX  | 3.35 SX  | 0.96 kg |
| H31.005.03.09 | 90 SX  | 3.54 SX  | 1.07 kg |
| H31.005.03.10 | 95 SX  | 3.74 SX  | 1.07 kg |

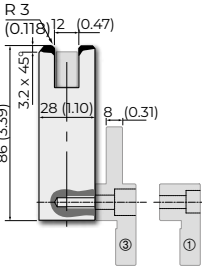


C45: 560-710 N/mm<sup>2</sup>

500 kN/m max.

H31.013.0

|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.013.01.01 | 100    | 3.94     | 1.77 kg |
| H31.013.02.01 | 50 SX  | 1.97 SX  | 1.33 kg |
| H31.013.02.02 | 55 DX  | 2.17 DX  | 1.33 kg |
| H31.013.02.03 | 60 DX  | 2.36 DX  | 1.42 kg |
| H31.013.02.04 | 65 DX  | 2.56 DX  | 1.42 kg |
| H31.013.02.05 | 70 DX  | 2.76 DX  | 1.42 kg |
| H31.013.02.06 | 75 DX  | 2.95 DX  | 1.59 kg |
| H31.013.02.07 | 80 DX  | 3.15 DX  | 1.59 kg |
| H31.013.02.08 | 85 DX  | 3.35 DX  | 1.59 kg |
| H31.013.02.09 | 90 DX  | 3.54 DX  | 1.77 kg |
| H31.013.02.10 | 95 DX  | 3.74 DX  | 1.77 kg |
| H31.013.03.01 | 50 DX  | 1.97 DX  | 1.33 kg |
| H31.013.03.02 | 55 SX  | 2.17 SX  | 1.33 kg |
| H31.013.03.03 | 60 SX  | 2.36 SX  | 1.42 kg |
| H31.013.03.04 | 65 SX  | 2.56 SX  | 1.42 kg |
| H31.013.03.05 | 70 SX  | 2.76 SX  | 1.42 kg |
| H31.013.03.06 | 75 SX  | 2.95 SX  | 1.59 kg |
| H31.013.03.07 | 80 SX  | 3.15 SX  | 1.59 kg |
| H31.013.03.08 | 85 SX  | 3.35 SX  | 1.59 kg |
| H31.013.03.09 | 90 SX  | 3.54 SX  | 1.77 kg |
| H31.013.03.10 | 95 SX  | 3.74 SX  | 1.77 kg |

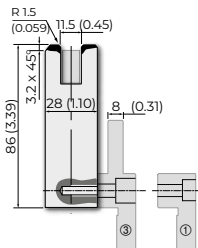


C45: 560-710 N/mm<sup>2</sup>

500 kN/m max.

H31.012.0

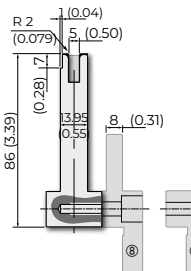
|               | L (mm) | L (inch) |         |
|---------------|--------|----------|---------|
| H31.012.01.01 | 100    | 3.94     | 1.76 kg |
| H31.012.02.01 | 50 SX  | 1.97 SX  | 1.32 kg |
| H31.012.02.02 | 55 DX  | 2.17 DX  | 1.32 kg |
| H31.012.02.03 | 60 DX  | 2.36 DX  | 1.41 kg |
| H31.012.02.04 | 65 DX  | 2.56 DX  | 1.41 kg |
| H31.012.02.05 | 70 DX  | 2.76 DX  | 1.41 kg |
| H31.012.02.06 | 75 DX  | 2.95 DX  | 1.58 kg |
| H31.012.02.07 | 80 DX  | 3.15 DX  | 1.58 kg |
| H31.012.02.08 | 85 DX  | 3.35 DX  | 1.58 kg |
| H31.012.02.09 | 90 DX  | 3.54 DX  | 1.76 kg |
| H31.012.02.10 | 95 DX  | 3.74 DX  | 1.76 kg |
| H31.012.03.01 | 50 DX  | 1.97 DX  | 1.32 kg |
| H31.012.03.02 | 55 SX  | 2.17 SX  | 1.32 kg |
| H31.012.03.03 | 60 SX  | 2.36 SX  | 1.41 kg |
| H31.012.03.04 | 65 SX  | 2.56 SX  | 1.41 kg |
| H31.012.03.05 | 70 SX  | 2.76 SX  | 1.41 kg |
| H31.012.03.06 | 75 SX  | 2.95 SX  | 1.58 kg |
| H31.012.03.07 | 80 SX  | 3.15 SX  | 1.58 kg |
| H31.012.03.08 | 85 SX  | 3.35 SX  | 1.58 kg |
| H31.012.03.09 | 90 SX  | 3.54 SX  | 1.76 kg |
| H31.012.03.10 | 95 SX  | 3.74 SX  | 1.76 kg |





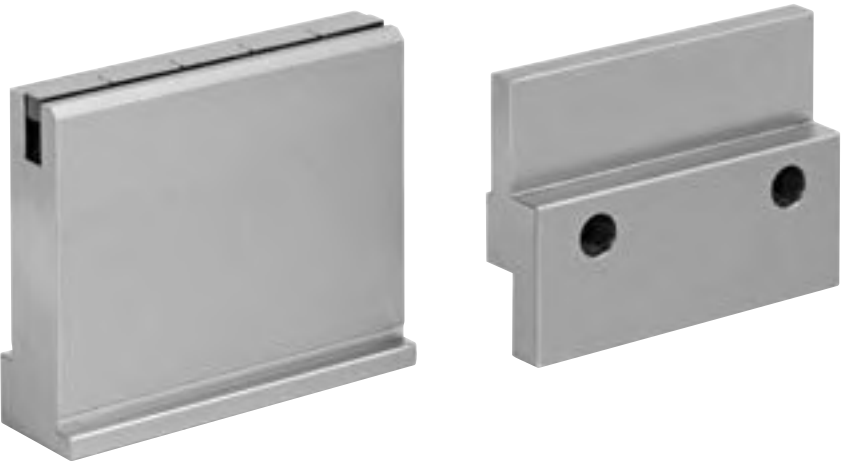
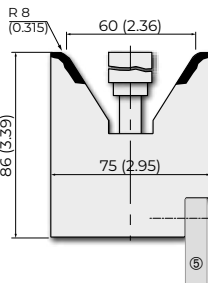
42Cr: 900-1150 N/mm<sup>2</sup> 350 kN/m max.

| H31.006.0     |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H31.006.01.01 | 100    | 3.94     | 1.08 kg |
| H31.006.02.01 | 50 SX  | 1.97 SX  | 0.81 kg |
| H31.006.02.02 | 55 DX  | 2.17 DX  | 0.81 kg |
| H31.006.02.03 | 60 DX  | 2.36 DX  | 0.86 kg |
| H31.006.02.04 | 65 DX  | 2.56 DX  | 0.86 kg |
| H31.006.02.05 | 70 DX  | 2.76 DX  | 0.86 kg |
| H31.006.02.06 | 75 DX  | 2.95 DX  | 0.97 kg |
| H31.006.02.07 | 80 DX  | 3.15 DX  | 0.97 kg |
| H31.006.02.08 | 85 DX  | 3.35 DX  | 0.97 kg |
| H31.006.02.09 | 90 DX  | 3.54 DX  | 1.08 kg |
| H31.006.02.10 | 95 DX  | 3.74 DX  | 1.08 kg |
| H31.006.03.01 | 50 DX  | 1.97 DX  | 0.81 kg |
| H31.006.03.02 | 55 SX  | 2.17 SX  | 0.81 kg |
| H31.006.03.03 | 60 SX  | 2.36 SX  | 0.86 kg |
| H31.006.03.04 | 65 SX  | 2.56 SX  | 0.86 kg |
| H31.006.03.05 | 70 SX  | 2.76 SX  | 0.86 kg |
| H31.006.03.06 | 75 SX  | 2.95 SX  | 0.97 kg |
| H31.006.03.07 | 80 SX  | 3.15 SX  | 0.97 kg |
| H31.006.03.08 | 85 SX  | 3.35 SX  | 0.97 kg |
| H31.006.03.09 | 90 SX  | 3.54 SX  | 1.08 kg |
| H31.006.03.10 | 95 SX  | 3.74 SX  | 1.08 kg |



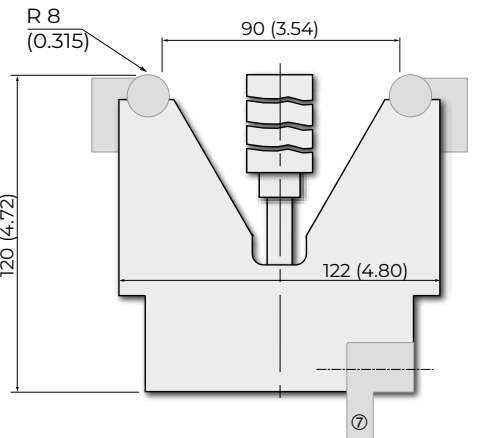
C45: 560-710 N/mm<sup>2</sup> 1500 kN/m max.

| H31.060.0     |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H31.060.01.01 | 100    | 3.94     | 3.76 kg |
| H31.060.02.01 | 50 SX  | 1.97 SX  | 2.82 kg |
| H31.060.02.02 | 55 DX  | 2.17 DX  | 2.82 kg |
| H31.060.02.03 | 60 DX  | 2.36 DX  | 3.01 kg |
| H31.060.02.04 | 65 DX  | 2.56 DX  | 3.01 kg |
| H31.060.02.05 | 70 DX  | 2.76 DX  | 3.01 kg |
| H31.060.02.06 | 75 DX  | 2.95 DX  | 3.38 kg |
| H31.060.02.07 | 80 DX  | 3.15 DX  | 3.38 kg |
| H31.060.02.08 | 85 DX  | 3.35 DX  | 3.38 kg |
| H31.060.02.09 | 90 DX  | 3.54 DX  | 3.76 kg |
| H31.060.02.10 | 95 DX  | 3.74 DX  | 3.76 kg |
| H31.060.03.01 | 50 DX  | 1.97 DX  | 2.82 kg |
| H31.060.03.02 | 55 SX  | 2.17 SX  | 2.82 kg |
| H31.060.03.03 | 60 SX  | 2.36 SX  | 3.01 kg |
| H31.060.03.04 | 65 SX  | 2.56 SX  | 3.01 kg |
| H31.060.03.05 | 70 SX  | 2.76 SX  | 3.01 kg |
| H31.060.03.06 | 75 SX  | 2.95 SX  | 3.38 kg |
| H31.060.03.07 | 80 SX  | 3.15 SX  | 3.38 kg |
| H31.060.03.08 | 85 SX  | 3.35 SX  | 3.38 kg |
| H31.060.03.09 | 90 SX  | 3.54 SX  | 3.76 kg |
| H31.060.03.10 | 95 SX  | 3.74 SX  | 3.76 kg |



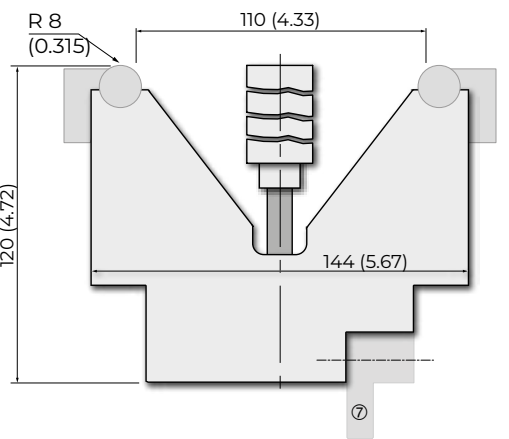
C45: 560-710 N/mm<sup>2</sup> 1500 kN/m max.

| H31.090.01.01 |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H31.090.01.01 | 100    | 3.94     | 8.15 kg |



C45: 560-710 N/mm<sup>2</sup> 1500 kN/m max.

| H31.110.01.01 |        |          |         |
|---------------|--------|----------|---------|
|               | L (mm) | L (inch) |         |
| H31.110.01.01 | 100    | 3.94     | 8.83 kg |





ABOUT US



Since 1987 we have been producing standard and special tooling. The family owned company (Francesco and Marco Rolleri) can nowadays be considered one of the largest press brake tooling manufacturers in Europe. We offer a fast and reliable service through our partners all over Europe.

The reorganization of our sales force, happened in 2012, has guaranteed a widespread presence of our products in every single market. For this reason, our production was enlarged considerably with an additional hall and many new machines in the year 2016.

ROLLERI WORLD  
Today



- Rolleri S.p.A. – Head Office **it**
- Rolleri Baltic **ba**
- Rolleri Benelux **bx**
- Rolleri Do Brasil **br**
- Rolleri Trad. Co. China **cn**
- Rolleri Česká Republika **cz**
- Rolleri Iberica **es**
- Rolleri Finland **fi**

- Rolleri France **fr**
- Rolleri Deutschland GmbH **de**
- Rolleri Polska **pl**
- Rolleri Slovensko **sk**
- Rolleri Ukraine LLC **ua**
- Rolleri USA **us**
- Rolleri UK **gb**



## OUR PRODUCTION

### Warehouse, Manufacturing and Quality

#### ► Manufacturing

Besides manufacturing many special tools, our research and development team also designs fast clamping systems in order to increase your productivity.

Technicians and engineers develop for you convenient and practical solutions.

We work with highly complex 3D simulation models and we are able to create bending samples of various profiles.



#### ► Quality

Rolleri is ISO 9001:2015 certified.

For us, being your supplier means helping you to find the best and most convenient tool and to develop a large number of bending solutions. Furthermore, we offer training for your bending department employees.

Our quality control department checks and tests every single tool after a complete production cycle. After a careful inspection, every tool is marked with a serial number and a batch number. This process guarantees complete tool traceability.

Rolleri also guarantees accurate reproduction, high-quality material, induction hardening and precision grinding.



## OUR PRODUCTION

### Raw Material and Production

#### ► Raw Material

Raw material is provided by qualified suppliers and chemical composition corresponds to international standards. Therefore, raw material yield and tensile strength are guaranteed.



#### ► Rolleri Tools

Every tool is manufactured in Rolleri's production facilities. This enables us to guarantee high quality, repeatability and parallelism thanks to high precision grinding.

We use induction hardening at 54-60 HRc for all tools to get the best results for your punches and dies.

Each tool is subjected to quality control and then provided with a serial number to guarantee its traceability.





## OUR PRODUCTION Machinery

### Warehouse

With more than 20,000 press brake tools on stock, we hold one of the largest warehouses in Europe. Thanks to this, a large amount of tools is ready to be shipped all around the world.



### CNC-Milling

With our state-of-the-art milling centers we can quickly modify tools with high precision.

Very flexible tilting machine heads can carry out a wide variety of processes. This is where grooves, relieves, and other machining types are carried out.



### CNC-Profile Grinding

Our CNC-Professional grinding machines guarantee high precision (tolerance of  $\pm 0.01$  mm), accurate parallelism and repeatability.

Here you can also retrofit induction hardened and core hardened tools. Radius and angle modifications are precisely carried out upon request.



## OUR PRODUCTION Machinery

### Hardening

Tool working areas are exposed to the highest mechanical stress, because press brake force is concentrated on small surfaces. For this reason, press force on tool working areas is very high and it results in high friction between tools and sheet metal to be bent.

In order to have more resistant tools, their surface is hardened. Rollerli uses induction hardening, which penetrates about 3 mm into the tool steel, to guarantee high wear resistance and to offer customers the best solution to competitive prices.



### EDM

By using electro-discharge machines, Rollerli can machine hardened and tough materials. This process is based on the definition of the tool shape with a high precision CAD software and the manufacturing of simple and complicated shapes.

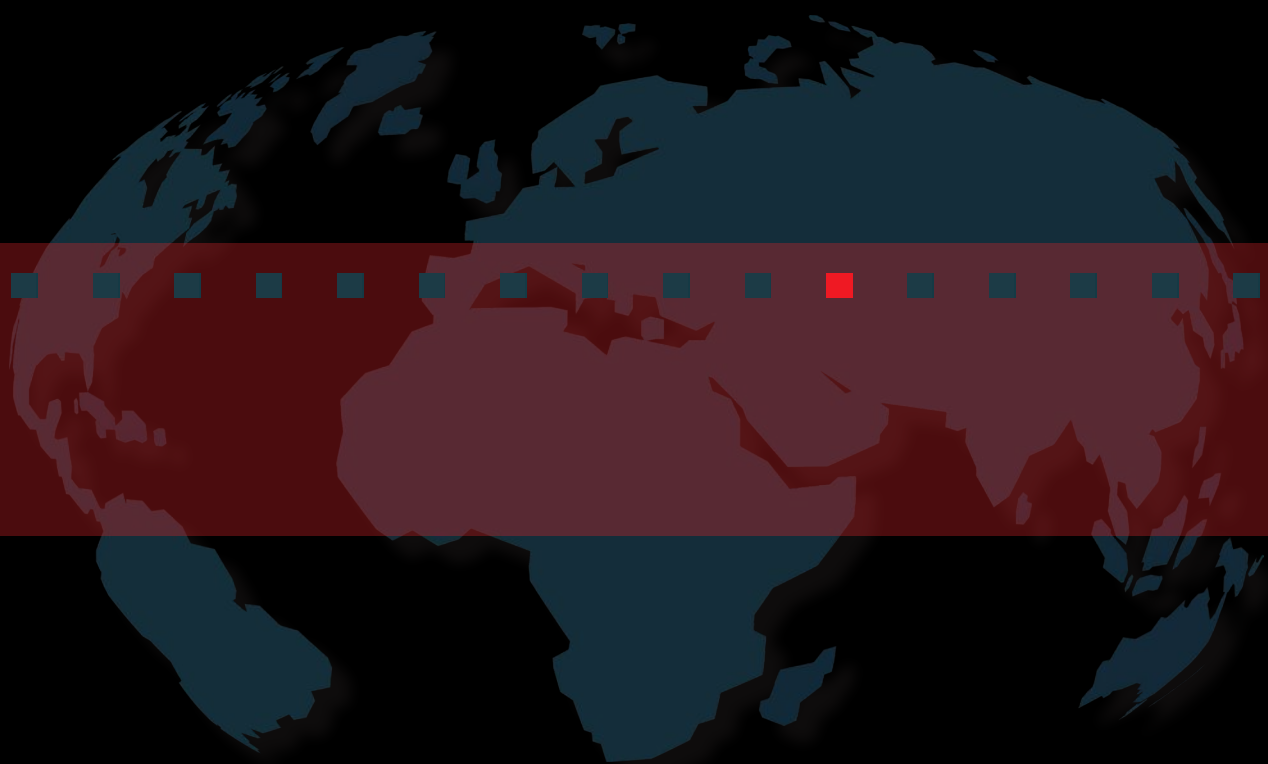


### 3D printer

The introduction of new "Additive" machines with the possibility of constructing any object with materials similar to steel starting from a 3D design. Thanks to this technology it's possible to reduce the production time of very complex tools and to have fast delivery times



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