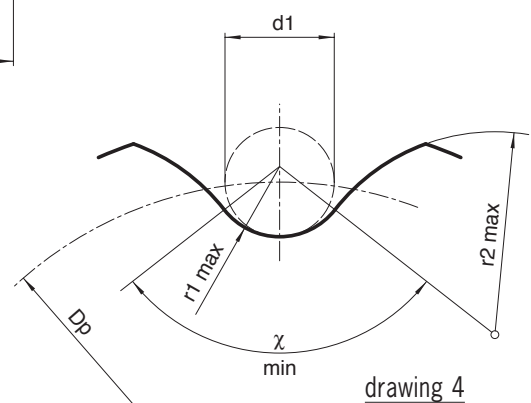
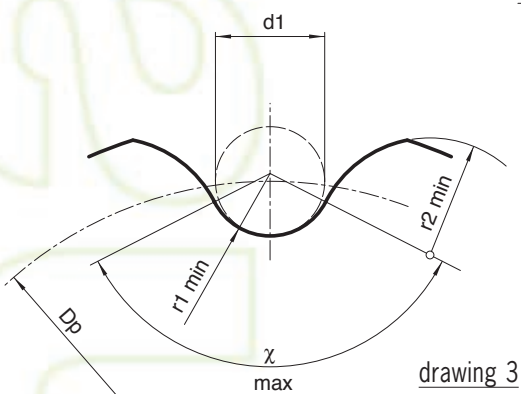
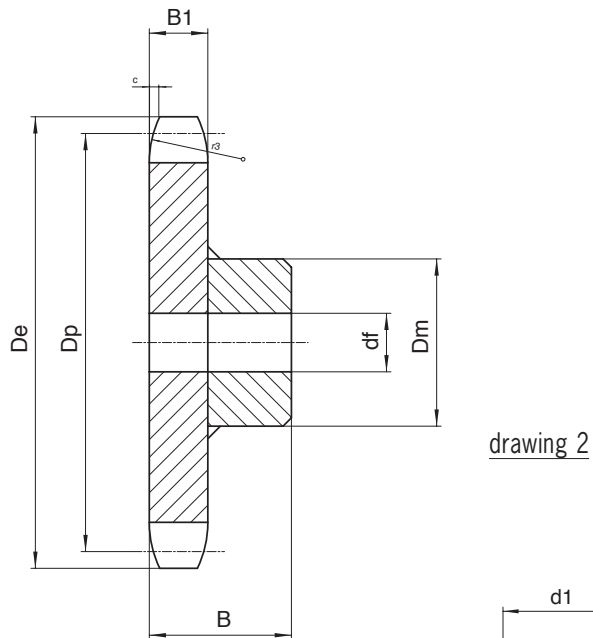
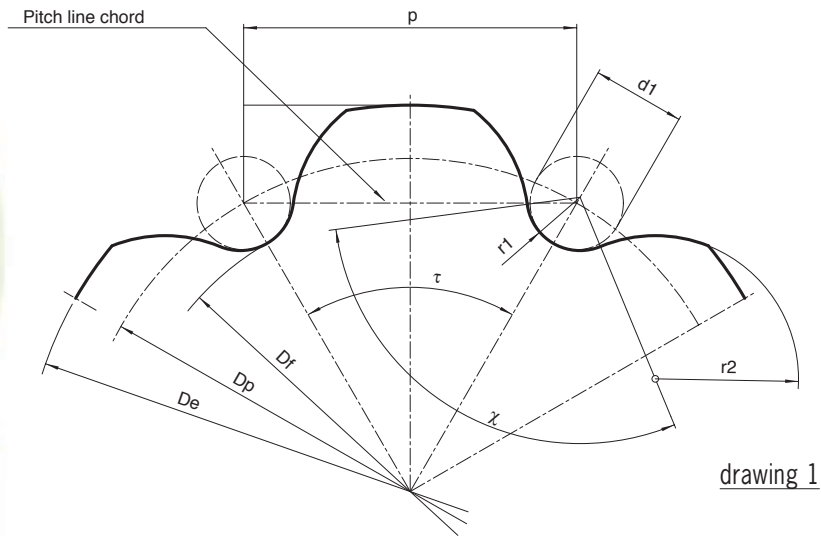


# SPROCKETS



## LEGENDA

|       |                      |        |                           |       |                            |
|-------|----------------------|--------|---------------------------|-------|----------------------------|
| $p$   | chain pitch          | $r_1$  | radius of the roller seat | $z$   | number of teeth            |
| $d_1$ | roller diameter      | $\tau$ | pitch angle               | $B_1$ | tooth width                |
| $D_p$ | pitch diameter       | $\chi$ | angle of the roller seat  | $c$   | release of the tooth flank |
| $D_f$ | bottom-land diameter | $r_2$  | radius of the tooth flank | $r_3$ | radius of the tooth head   |
| $D_e$ | outer diameter       |        |                           |       |                            |

# SPROCKETS

## SPROKET DESIGN CALCULATIONS

### PITCH DIAMETER (See drawings 1-2)

$$D_p = \frac{P}{\sin \frac{\tau}{2}} = p \cdot y$$

$$\frac{\tau}{2} = \frac{180^\circ}{z}$$

y = fixed number of table no.8

TABLE 8

| No. of Teeth | Fixed no. y | No. of Teeth | Fixed no. y | No. of Teeth | Fixed no. y |
|--------------|-------------|--------------|-------------|--------------|-------------|
| 6            | 2,000       | 21           | 6,709       | 36           | 11,474      |
| 7            | 2,305       | 22           | 7,027       | 37           | 11,792      |
| 8            | 2,613       | 23           | 7,344       | 38           | 12,110      |
| 9            | 2,924       | 24           | 7,661       | 39           | 12,428      |
| 10           | 3,236       | 25           | 7,979       | 40           | 12,745      |
| 11           | 3,549       | 26           | 8,296       | 41           | 13,063      |
| 12           | 3,864       | 27           | 8,614       | 42           | 13,381      |
| 13           | 4,179       | 28           | 8,931       | 43           | 13,700      |
| 14           | 4,494       | 29           | 9,249       | 44           | 14,018      |
| 15           | 4,810       | 30           | 9,567       | 45           | 14,336      |
| 16           | 5,126       | 31           | 9,885       | 46           | 14,654      |
| 17           | 5,442       | 32           | 10,202      | 47           | 14,972      |
| 18           | 5,759       | 33           | 10,520      | 48           | 15,290      |
| 19           | 6,076       | 34           | 10,838      | 49           | 15,608      |
| 20           | 6,392       | 35           | 11,156      | 50           | 15,926      |

### TOOTH ROOT DIAMETER (See drawing 1)

$$D_f = D_p - d_1$$

### TOOTH POCKET DIMENSIONS (See drawings 3-4)

Minimum dimensions:

$$r_{1min} = 0,505 \cdot d_1$$

$$\chi_{max} = 140^\circ - \frac{90^\circ}{z}$$

$$r_{2min} = 0,12 \cdot d_1 \cdot (z+2)$$

Maximum dimensions:

$$r_{1max} = 0,505 \cdot d_1 + 0,069 \cdot \sqrt[3]{d_1}$$

$$\chi_{min} = 120^\circ - \frac{90^\circ}{z}$$

$$r_{2max} = 0,008 \cdot d_1 \cdot (z^2+180)$$

### TOP DIAMETER (See drawings 1-2)

Maximum value:

$$D_{e max} = D_p + 0,8 d_1$$

Minimum value:

$$D_{e min} = D_p + 0,5 d_1$$

### TOOTH WIDTH (See drawing 2)

$$B_1 = (0,90 \div 0,93) \cdot L$$

L = inner width of the chain

$$0,1 \cdot p \leq c \leq 0,15 \cdot p$$

$$r_3 \geq p$$



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