

## Kugelscheiben / Kegelpfannen • ähnlich DIN 6319, rostfreier Stahl

EH 23050.



### Produktbeschreibung

Kugelscheiben / Kegelpfannen werden als Unterlegscheiben bei einer Schraubverbindung zum Ausgleich von nicht parallelen Flächen eingesetzt.

### Werkstoff

#### Kegelpfanne

- Rostfreier Stahl 1.4305
- Rostfreier Stahl A4

#### Kugelscheibe

- Rostfreier Stahl 1.4305
- Rostfreier Stahl A4

### Montage

Kegelpfannen, Form D, nur für ebene, geschlossene Ringflächen.  
Für Langlöcher nur Form G verwenden!

### Kennzeichnung

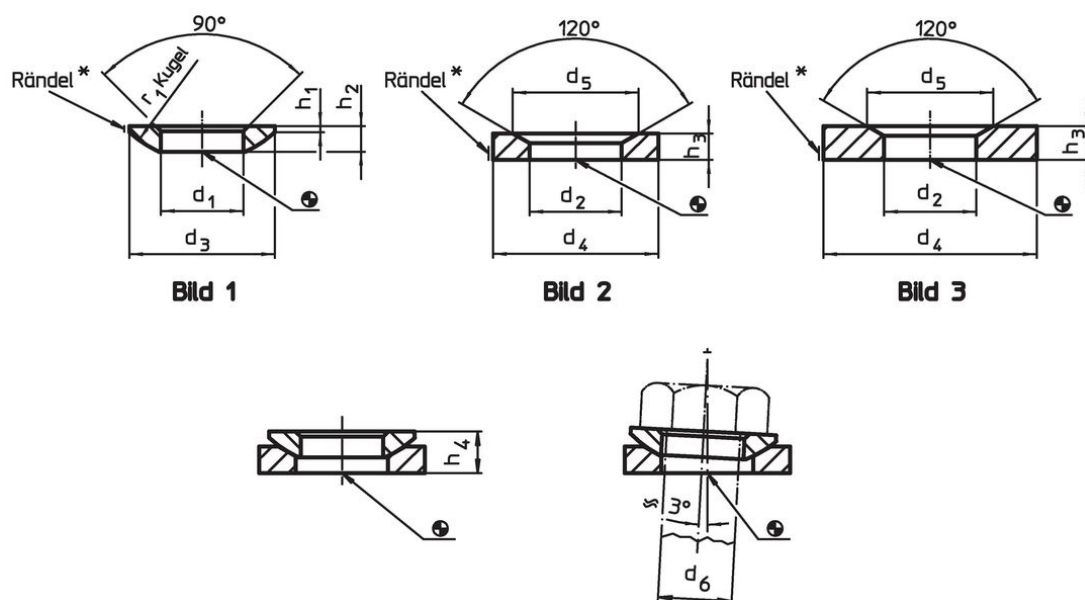
Ausführung rostfreier Stahl A4 mit Markierung (Rändel) gemäß Zeichnung.

### Weiterführende Informationen

### Weitere Produkte

- Kugelscheiben / Kegelpfannen, DIN 6319
- Sechskantmuttern, DIN 6330 (Höhe 1,5 d)

### Maßzeichnung




\* Rändel: Materialkennzeichnung für Ausführung rostfreier Stahl A4

### Bestellinformationen

| Abmessungen  |                |                |                |                |                |                |                |  |  |    | für Bolzen<br>d <sub>6</sub> | für Schrauben<br>d <sub>6</sub> | Belastbarkeit bei<br>statischer Belastung<br>max. | Drehmoment<br>für<br>Schraubver-<br>bindungen <sup>1)</sup><br>max. | [g]  | Art.-Nr.   |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--|--|----|------------------------------|---------------------------------|---|---|------|------------|
| d <sub>1</sub>   | d <sub>2</sub> | d <sub>3</sub> | d <sub>4</sub> | d <sub>5</sub> | h <sub>1</sub> | h <sub>2</sub> | h <sub>3</sub> | h <sub>4</sub>                         | r <sub>1</sub>                         |    |                              |                                 |   |   |      |            |
| H13  | H13            |                |                |                |                |                |                | mit<br>Kegel-<br>pfanne<br>Form D<br>~ | mit<br>Kegel-<br>pfanne<br>Form G<br>~ |    | [mm]                         | [mm]                            | [kN]  | [Nm]  | [g]  |            |
| Kugelscheiben aus rostfreiem Stahl, Form C – Bild 1, Rostfreier Stahl 1.4305 |                |                |                |                |                |                |                |  |  |    |                              |                                 |   |   |      |            |
| 6,4  | –              | 12             | –              | –              | 0,7            | 2,3            | –              | 4,0                                    | 5,2                                    | 9  | 6                            | M 6                             | 6   | 6   | 1,0  | 23050.0306 |
| 8,4  | –              | 17             | –              | –              | 0,6            | 3,2            | –              | 5,3                                    | 6,8                                    | 12 | 8                            | M 8                             | 12  | 16  | 2,8  | 23050.0308 |
| 10,5   | –              | 21             | –              | –              | 0,8            | 4,0            | –              | 6,3                                    | 7,1                                    | 15 | 10                           | M10                             | 16  | 32  | 5,0  | 23050.0310 |
| 13,0   | –              | 24             | –              | –              | 1,1            | 4,6            | –              | 7,9                                    | 8,9                                    | 17 | 12                           | M12                             | 24  | 56  | 7,7  | 23050.0312 |
| 17,0   | –              | 30             | –              | –              | 1,3            | 5,3            | –              | 9,3                                    | 10,1                                   | 22 | 16                           | M16                             | 45  | 135   | 13,0 | 23050.0316 |
| 21,0   | –              | 36             | –              | –              | 2,0            | 6,3            | –              | 11,6                                   | 12,1                                   | 27 | 20                           | M20                             | 71  | 280   | 23,0 | 23050.0320 |
| 25,0   | –              | 44             | –              | –              | 2,4            | 8,2            | –              | 14,9                                   | 15,4                                   | 32 | 24                           | M24                             | 105   | 455   | 46,0 | 23050.0324 |

<sup>1)</sup> Drehmomentangabe für Schrauben mit Regelgewinde, ggf. Vorlast berücksichtigen, Reibungszahl  $\mu_{ges}$  0,14.

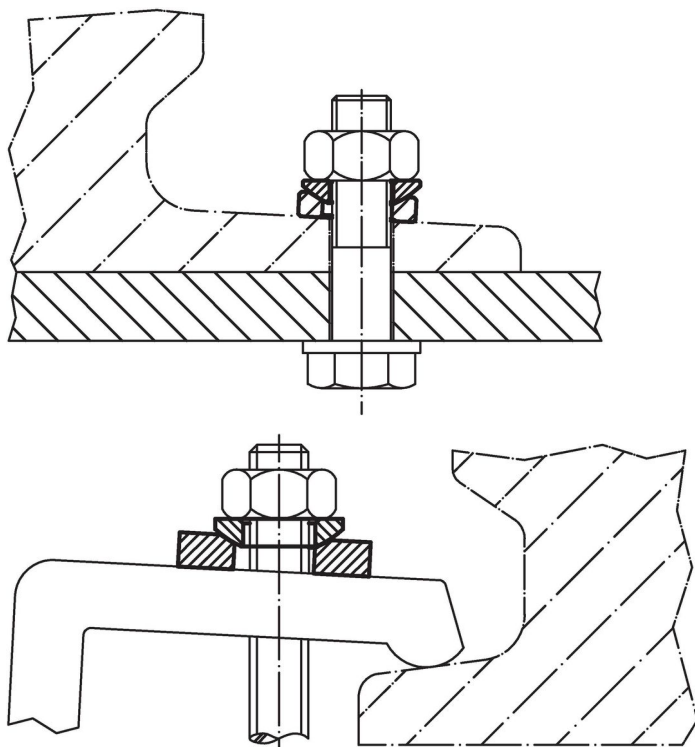
| d <sub>1</sub><br>H13  | d <sub>2</sub><br>H13 | d <sub>3</sub> | d <sub>4</sub> | d <sub>5</sub> | Abmessungen    |                |                |                |      |      | r <sub>1</sub> | für<br>Bolzen<br>d <sub>6</sub> | für<br>Schrauben<br>d <sub>6</sub> | Belastbarkeit bei<br>statischer Belastung<br>max. | Drehmoment<br>für<br>Schraubver-<br>bindungen <sup>1)</sup><br>max. |  | Art.-Nr. |
|--|-----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------|------|----------------|---------------------------------|------------------------------------|---|---|---|----------|
|  |                       |                |                |                | h <sub>1</sub> | h <sub>2</sub> | h <sub>3</sub> | h <sub>4</sub> |      | [mm] |                |                                 |                                    |   |   |   |          |
| 31,0   | –                     | 56             | –              | –              | 3,6            | 11,2           | –              | 18,8           | 18,8 | 41   | 30             | M30                             | 191                                | 1050  | 104,0   | 23050.0330  |          |
| 37,0   | –                     | 68             | –              | –              | 4,6            | 14,0           | –              | 23,4           | –    | 50   | 36             | M36                             | –                                  | –   | 193,0   | 23050.0336  |          |
| 43,0   | –                     | 78             | –              | –              | 6,5            | 17,0           | –              | 28,3           | –    | 58   | 42             | M42                             | –                                  | –   | 313,0   | 23050.0342  |          |
| 50,0   | –                     | 92             | –              | –              | 8,0            | 21,0           | –              | 35,0           | –    | 67   | 48             | M48                             | –                                  | –   | 545,0   | 23050.0348  |          |
| <b>Kugelscheiben aus rostfreiem Stahl, Form C – Bild 1, Rostfreier Stahl A4</b>    |                       |                |                |                |                |                |                |                |      |      |                |                                 |                                    |   |   |   |          |
| 6,4  | –                     | 12             | –              | –              | 0,7            | 2,3            | –              | 4,0            | 5,2  | 9    | 6              | M 6                             | 6                                  | 6   | 1,0   | 23050.0606  |          |
| 8,4  | –                     | 17             | –              | –              | 0,6            | 3,2            | –              | 5,3            | 6,8  | 12   | 8              | M 8                             | 12                                 | 16  | 2,8   | 23050.0608  |          |
| 10,5   | –                     | 21             | –              | –              | 0,8            | 4,0            | –              | 6,3            | 7,1  | 15   | 10             | M10                             | 16                                 | 32  | 5,0   | 23050.0610  |          |
| 13,0   | –                     | 24             | –              | –              | 1,1            | 4,6            | –              | 7,9            | 8,9  | 17   | 12             | M12                             | 24                                 | 56  | 7,7   | 23050.0612  |          |
| 17,0   | –                     | 30             | –              | –              | 1,3            | 5,3            | –              | 9,3            | 10,1 | 22   | 16             | M16                             | 45                                 | 135   | 13,0  | 23050.0616  |          |
| 21,0   | –                     | 36             | –              | –              | 2,0            | 6,3            | –              | 11,6           | 12,1 | 27   | 20             | M20                             | 71                                 | 280   | 23,0  | 23050.0620  |          |
| 25,0   | –                     | 44             | –              | –              | 2,4            | 8,2            | –              | 14,9           | 15,4 | 32   | 24             | M24                             | 105                                | 455   | 46,0  | 23050.0624  |          |
| 31,0   | –                     | 56             | –              | –              | 3,6            | 11,2           | –              | 18,8           | 18,8 | 41   | 30             | M30                             | 191                                | 1050  | 104,0   | 23050.0630  |          |
| 37,0   | –                     | 68             | –              | –              | 4,6            | 14,0           | –              | 23,4           | –    | 50   | 36             | M36                             | –                                  | –   | 193,0   | 23050.0636  |          |
| 43,0   | –                     | 78             | –              | –              | 6,5            | 17,0           | –              | 28,3           | –    | 58   | 42             | M42                             | –                                  | –   | 313,0   | 23050.0642  |          |
| 50,0   | –                     | 92             | –              | –              | 8,0            | 21,0           | –              | 35,0           | –    | 67   | 48             | M48                             | –                                  | –   | 545,0   | 23050.0648  |          |
| <b>Kegelpfannen aus rostfreiem Stahl, Form D – Bild 2, Rostfreier Stahl 1.4305</b> |                       |                |                |                |                |                |                |                |      |      |                |                                 |                                    |   |   |   |          |
| –  | 7,1                   | –              | 12             | 11,0           | –              | –              | 2,8            | –              | –    | –    | 6              | M 6                             | 6                                  | 6   | 1,3   | 23050.0406  |          |
| –  | 9,6                   | –              | 17             | 14,5           | –              | –              | 3,5            | –              | –    | –    | 8              | M 8                             | 12                                 | 16  | 3,7   | 23050.0408  |          |
| –  | 12,0                  | –              | 21             | 18,5           | –              | –              | 4,2            | –              | –    | –    | 10             | M10                             | 16                                 | 32  | 6,6   | 23050.0410  |          |
| –  | 14,2                  | –              | 24             | 20,0           | –              | –              | 5,0            | –              | –    | –    | 12             | M12                             | 24                                 | 56  | 10,0  | 23050.0412  |          |
| –  | 19,0                  | –              | 30             | 26,0           | –              | –              | 6,2            | –              | –    | –    | 16             | M16                             | 45                                 | 135   | 19,0  | 23050.0416  |          |
| –  | 23,2                  | –              | 36             | 31,0           | –              | –              | 7,5            | –              | –    | –    | 20             | M20                             | 71                                 | 280   | 32,0  | 23050.0420  |          |
| –  | 28,0                  | –              | 44             | 37,0           | –              | –              | 9,5            | –              | –    | –    | 24             | M24                             | 105                                | 455   | 63,0  | 23050.0424  |          |
| –  | 35,0                  | –              | 56             | 49,0           | –              | –              | 12,0           | –              | –    | –    | 30             | M30                             | 191                                | 1050  | 127,0   | 23050.0430  |          |
| –  | 42,0                  | –              | 68             | 60,0           | –              | –              | 15,0           | –              | –    | –    | 36             | M36                             | –                                  | –   | 234,0   | 23050.0436  |          |
| –  | 49,0                  | –              | 78             | 70,0           | –              | –              | 18,0           | –              | –    | –    | 42             | M42                             | –                                  | –   | 362,0   | 23050.0442  |          |
| –  | 56,0                  | –              | 92             | 82,0           | –              | –              | 22,0           | –              | –    | –    | 48             | M48                             | –                                  | –   | 642,0   | 23050.0448  |          |
| <b>Kegelpfannen aus rostfreiem Stahl, Form D – Bild 2, Rostfreier Stahl A4</b>     |                       |                |                |                |                |                |                |                |      |      |                |                                 |                                    |   |   |   |          |
| –  | 7,1                   | –              | 12             | 11,0           | –              | –              | 2,8            | –              | –    | –    | 6              | M 6                             | 6                                  | 6   | 1,3   | 23050.0666  |          |
| –  | 9,6                   | –              | 17             | 14,5           | –              | –              | 3,5            | –              | –    | –    | 8              | M 8                             | 12                                 | 16  | 3,7   | 23050.0668  |          |
| –  | 12,0                  | –              | 21             | 18,5           | –              | –              | 4,2            | –              | –    | –    | 10             | M10                             | 16                                 | 32  | 6,6   | 23050.0670  |          |
| –  | 14,2                  | –              | 24             | 20,0           | –              | –              | 5,0            | –              | –    | –    | 12             | M12                             | 24                                 | 56  | 10,0  | 23050.0672  |          |
| –  | 19,0                  | –              | 30             | 26,0           | –              | –              | 6,2            | –              | –    | –    | 16             | M16                             | 45                                 | 135   | 19,0  | 23050.0676  |          |
| –  | 23,2                  | –              | 36             | 31,0           | –              | –              | 7,5            | –              | –    | –    | 20             | M20                             | 71                                 | 280   | 32,0  | 23050.0680  |          |
| –  | 28,0                  | –              | 44             | 37,0           | –              | –              | 9,5            | –              | –    | –    | 24             | M24                             | 105                                | 455   | 63,0  | 23050.0684  |          |
| –  | 35,0                  | –              | 56             | 49,0           | –              | –              | 12,0           | –              | –    | –    | 30             | M30                             | 191                                | 1050  | 127,0   | 23050.0686  |          |
| –  | 42,0                  | –              | 68             | 60,0           | –              | –              | 15,0           | –              | –    | –    | 36             | M36                             | –                                  | –   | 234,0   | 23050.0688  |          |
| –  | 49,0                  | –              | 78             | 70,0           | –              | –              | 18,0           | –              | –    | –    | 42             | M42                             | –                                  | –   | 362,0   | 23050.0692  |          |
| –  | 56,0                  | –              | 92             | 82,0           | –              | –              | 22,0           | –              | –    | –    | 48             | M48                             | –                                  | –   | 642,0   | 23050.0694  |          |
| <b>Kegelpfannen aus rostfreiem Stahl, Form G – Bild 3, Rostfreier Stahl 1.4305</b> |                       |                |                |                |                |                |                |                |      |      |                |                                 |                                    |   |   |   |          |
| –  | 7,1                   | –              | 17             | 11,0           | –              | –              | 4,0            | –              | –    | –    | 6              | M 6                             | 6                                  | 6   | 5,8   | 23050.0466  |          |
| –  | 9,6                   | –              | 24             | 14,5           | –              | –              | 5,0            | –              | –    | –    | 8              | M 8                             | 12                                 | 16  | 15,0  | 23050.0468  |          |
| –  | 12,0                  | –              | 30             | 18,5           | –              | –              | 5,0            | –              | –    | –    | 10             | M10                             | 16                                 | 32  | 22,0  | 23050.0470  |          |
| –  | 14,2                  | –              | 36             | 20,0           | –              | –              | 6,0            | –              | –    | –    | 12             | M12                             | 24                                 | 56  | 40,0  | 23050.0472  |          |
| –  | 19,0                  | –              | 44             | 26,0           | –              | –              | 7,0            | –              | –    | –    | 16             | M16                             | 45                                 | 135   | 66,0  | 23050.0476  |          |
| –  | 23,2                  | –              | 50             | 31,0           | –              | –              | 8,0            | –              | –    | –    | 20             | M20                             | 71                                 | 280   | 95,0  | 23050.0480  |          |
| –  | 28,0                  | –              | 60             | 37,0           | –              | –              | 10,0           | –              | –    | –    | 24             | M24                             | 105                                | 455   | 171,0   | 23050.0484  |          |
| –  | 35,0                  | –              | 68             | 49,0           | –              | –              | 12,0           | –              | –    | –    | 30             | M30                             | 191                                | 1050  | 236,0   | 23050.0490  |          |
| <b>Kegelpfannen aus rostfreiem Stahl, Form G – Bild 3, Rostfreier Stahl A4</b>     |                       |                |                |                |                |                |                |                |      |      |                |                                 |                                    |   |   |   |          |
| –  | 7,1                   | –              | 17             | 11,0           | –              | –              | 4,0            | –              | –    | –    | 6              | M 6                             | 6                                  | 6   | 5,8   | 23050.0706  |          |
| –  | 9,6                   | –              | 24             | 14,5           | –              | –              | 5,0            | –              | –    | –    | 8              | M 8                             | 12                                 | 16  | 15,0  | 23050.0708  |          |
| –  | 12,0                  | –              | 30             | 18,5           | –              | –              | 5,0            | –              | –    | –    | 10             | M10                             | 16                                 | 32  | 22,0  | 23050.0710  |          |
| –  | 14,2                  | –              | 36             | 20,0           | –              | –              | 6,0            | –              | –    | –    | 12             | M12                             | 24                                 | 56  | 40,0  | 23050.0712  |          |

<sup>1)</sup> Drehmomentangabe für Schrauben mit Regelgewinde, ggf. Vorlast berücksichtigen, Reibungszahl  $\mu_{ges}$  0,14.

| d <sub>1</sub><br>H13 | d <sub>2</sub><br>H13 | d <sub>3</sub> | d <sub>4</sub> | d <sub>5</sub> | Abmessungen    |                |                |  |  | r <sub>1</sub> | für<br>Bolzen<br>d <sub>6</sub> | für<br>Schrauben<br>d <sub>6</sub> | Belastbarkeit bei<br>statischer Belastung<br>max. | Drehmoment<br>für<br>Schraubver-<br>bindungen <sup>1)</sup><br>max. | 🔩<br>[g] | Art.-Nr.   |
|-----------------------|-----------------------|----------------|----------------|----------------|----------------|----------------|----------------|--|--|----------------|---------------------------------|------------------------------------|---|---|----------|------------|
|                       |                       |                |                |                | h <sub>1</sub> | h <sub>2</sub> | h <sub>3</sub> | h <sub>4</sub><br>mit<br>Kegel-<br>pfanne<br>Form D<br>~ | h <sub>4</sub><br>mit<br>Kegel-<br>pfanne<br>Form G<br>~ |                |                                 |                                    |   |   |          |            |
| -                     | 19,0                  | -              | 44             | 26,0           | -              | -              | 7,0            | -  | -  | -              | 16                              | M16                                | 45  | 135   | 66,0     | 23050.0716 |
| -                     | 23,2                  | -              | 50             | 31,0           | -              | -              | 8,0            | -  | -  | -              | 20                              | M20                                | 71  | 280   | 95,0     | 23050.0720 |
| -                     | 28,0                  | -              | 60             | 37,0           | -              | -              | 10,0           | -  | -  | -              | 24                              | M24                                | 105   | 455   | 171,0    | 23050.0724 |
| -                     | 35,0                  | -              | 68             | 49,0           | -              | -              | 12,0           | -  | -  | -              | 30                              | M30                                | 191   | 1050  | 236,0    | 23050.0730 |

<sup>1)</sup> Drehmomentangabe für Schrauben mit Regelgewinde, ggf. Vorlast berücksichtigen, Reibungszahl  $\mu_{ges}$  0,14.

### Anwendungsbeispiel



### Compliance

#### RoHS-konform

Konform gemäß Richtlinie 2011/65/EU und Richtlinie 2015/863.

#### Enthält keine SVHC-Stoffe

Keine SVHC Substanzen mit mehr als 0,1% w/w enthalten – SVHC Liste Stand 23.01.2024.

#### Enthält keine Proposition 65 Stoffe

Keine Stoffe der Proposition 65 enthalten.

<https://www.P65Warnings.ca.gov/>

#### Frei von Konfliktmineralien

Dieses Produkt enthält keine als "Konfliktmineralien" bezeichneten Stoffe wie Tantal, Zinn, Gold oder Wolfram aus der demokratischen Republik Kongo oder angrenzender Länder.