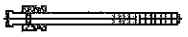
# Plugs

INFO-Products

## EXPANDER



INFO Anchorage Principle

INFO Installation Lengts High Pressure Systems

INFO Installation Lengts Low Pressure Systems

**Dichtstopfen HK**

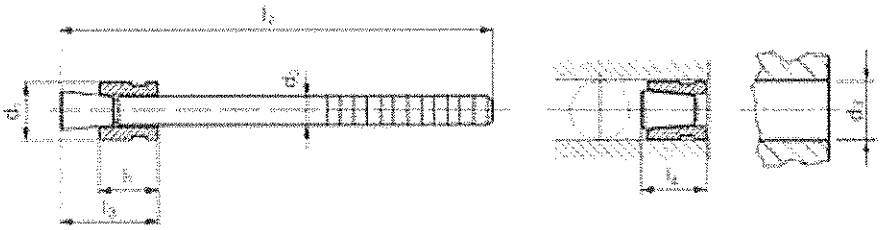
**HK 55 / Standard**
**Hülse: Einsatzstahl, weichgeglüht, gebläut**
**Stift: Vergütungsstahl**
**Spez. Ölfilm**

**Sealing Plugs HK**

INFO Pressure Performance

INFO Installation Instruction

**HK 55 / Standard**
**Sleeve: Case Hardening Steel**
**Soft annealed gun metal finish**
**Mandrel: Heat treatable Steel**
**Special oil film lubrication**



| $d_1$ Expander Ø | $l_1$ | $d_2$ | $l_2$ | $l_3$ max. | $l_4$ max. | $d_3$ + 0,1 0 | Type | |
|---|---|---|---|---|---|---|---|---|
| **3,0** | 5,0 | 2,0 | 36,5 | 9,0 | 7,0 | 3,0 | HK030-CK55-111 | |
| **4,0** | 5,0 | 2,2 | 38,0 | 9,5 | 8,0 | 4,0 | HK040CK55-111AK | 100 |
| **5,0** | 6,0 | 2,8 | 43,0 | 11,0 | 9,5 | 5,0 | HK050CK55-111AK | 100 |
| **6,0** | 6,5 | 2,8 | 43,0 | 12,0 | 10,0 | 6,0 | HK060CK55-111AK | 100 |
| **7,0** | 7,5 | 3,8 | 43,0 | 13,0 | 11,0 | 7,0 | HK070CK55-111AK | 100 |
| **8,0** | 8,5 | 4,5 | 38,0 | 13,5 | 11,5 | 8,0 | HK080CK55-111AK | 100 |
| **9,0** | 9,5 | 4,5 | 41,0 | 14,5 | 13,0 | 9,0 | HK090CK55-111AK | 100 |
| **10,0** | 10,5 | 4,5 | 41,0 | 15,5 | 13,5 | 10,0 | HK100CK55-111AK | 100 |

$d_1$ ø3: Hülse und Stift nicht vormontiert.

Für Neuanwendungen Serie SK verwenden.

$d_1$ ø3: Sleeve and mandrel not pre-assembled

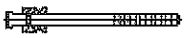
Use Series SK for new application

Top

# Plugs

INFO-Products

## EXPANDER



INFO Anchorage Principle

INFO Installation Lengts High Pressure Systems

INFO Installation Lengts Low Pressure Systems

**Dichtstopfen HK**

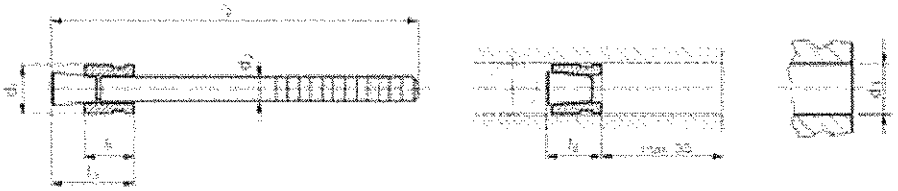
**HK 55 / Stift lang**
**Hülse: Einsatzstahl, weichgeglüht, gebläut**
**Stift: Vergütungsstahl**
**Spez. Ölfilm**
Sonder-Typ: Stift 30 mm verlängert

**Sealing Plugs HK**

INFO Pressure Performance

INFO Installation Instruction

**HK 55 / Long Mandrel**
**Sleeve: Case Hardening Steel**
**Soft annealed gun metal finish**
**Mandrel: Heat treatable Steel**
**Special oil film lubrication**
Special Type: Mandrel 30 mm longer



| $d_1$ Expander Ø | $l_1$ | $d_2$ | $l_2$ | $l_3$ max. | $l_4$ max. | $d_3$ + 0,1 0 | Type | |
|---|---|---|---|---|---|---|---|---|
| **4,0** | 5,0 | 2,2 | 68,0 | 9,5 | 8,0 | 4,0 | HK040CK55-211AK | 100 |
| **5,0** | 6,0 | 2,8 | 73,0 | 11,0 | 9,5 | 5,0 | HK050CK55-211AK | 100 |
| **6,0** | 6,5 | 2,8 | 73,0 | 12,0 | 10,0 | 6,0 | HK060CK55-211AK | 100 |
| **7,0** | 7,5 | 3,8 | 73,0 | 13,0 | 11,0 | 7,0 | HK070CK55-211AK | 100 |
| **8,0** | 8,5 | 4,5 | 68,0 | 13,5 | 11,5 | 8,0 | HK080CK55-211AK | 100 |
| **9,0** | 9,5 | 4,5 | 71,0 | 14,5 | 13,0 | 9,0 | HK090CK55-211AK | 50 |
| **10,0** | 10,5 | 4,5 | 71,0 | 15,5 | 13,5 | 10,0 | HK100CK55-211AK | 50 |

Für Neuanwendungen Serie SK verwenden.

Use Series SK for new application

Top

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## Pressure Performance

| Series LP | | Base material of the Installation | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | ① ETG-100 | ② C15Pb | ③ EN-GJL-250 | ④ EN-GJS-500-7 | ⑤ AlCuMg2 | ⑥ AlMgSiPb | ⑦ G-AlSi7Mg |
| ø 4–12 | | 180 bar / 2'600 psi<br>60 bar / 850 psi | | | | | 180 bar / 2'600 psi<br>60 bar / 850 psi | |
| Hole | Tolerance | as per specification sheet | | | | | | |
| | Roughness | $R_z$ 10–30µm | | | | Anchorage in base metal | | |

①②③④⑤ Temperature range for Proof Pressure Test Ⓑ: –40 °C bis +150 °C
⑥⑦ Temperature range for Proof Pressure Test Ⓑ: –40 °C bis +100 °C

| Series LK 600 | | Base material of the Installation | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | ① ETG-100 | ② C15Pb | ③ EN-GJL-250 | ④ EN-GJS-500-7 | ⑤ AlCuMg2 | ⑥ AlMgSiPb | ⑦ G-AlSi7Mg |
| ø 4–12 | | 180 bar / 2'600 psi<br>60 bar / 850 psi | | | | | 180 bar / 2'600 psi<br>60 bar / 850 psi | |
| Hole | Tolerance | 0 / +0,12 mm | | | | | | |
| | Roughness | $R_z$ 10–30µm | | Anchorage in base metal | | | | |

①②③④⑤ Temperature range for Proof Pressure Test Ⓑ: –40 °C bis +150 °C
⑥⑦ Temperature range for Proof Pressure Test Ⓑ: –40 °C bis +100 °C

| Series LK 950 | | Base material of the Installation | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | ① ETG-100 | ② C15Pb | ③ EN-GJL-250 | ④ EN-GJS-500-7 | ⑤ AlCuMg2 | ⑥ AlMgSiPb | ⑦ G-AlSi7Mg |
| ø 4–16 | | 180 bar / 2'600 psi<br>60 bar / 850 psi | | | | | 180 bar / 2'600 psi<br>60 bar / 850 psi | |
| Hole | Tolerance | 0 / +0,12 mm | | | | | | |
| | Roughness | $R_z$ 10–30µm | | | | | * | ** |

①②③④⑤ Temperature range for Proof Pressure Test Ⓑ: –40 °C bis +150 °C
⑥⑦ Temperature range for Proof Pressure Test Ⓑ: –40 °C bis +100 °C

* partial anchorage in base material
** anchorage in base material

**KOENIG-Expander Sealing Plugs series LK are not suitable for pressure load applied on the insertion side of the plug. For special release contact KVT.**

Proof Pressure Test Ⓑ
Max. allowable Working Pressure = Nominal Pressure

 

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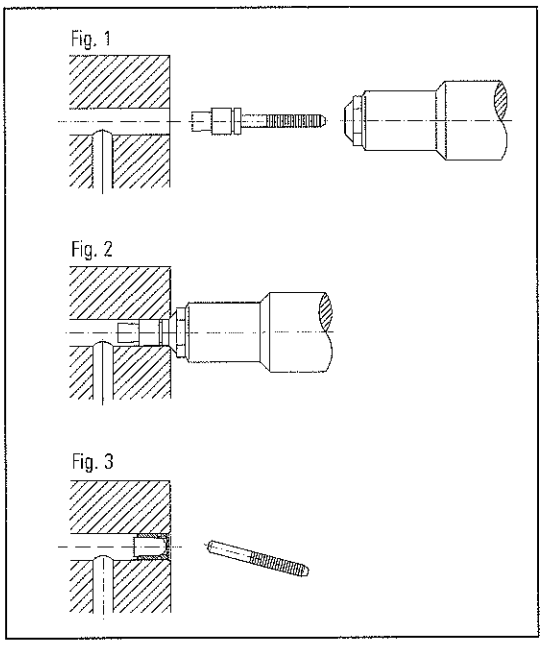
## Installation Instruction HK Series

### Drilled Hole

- The drilled hole must be within the tolerances shown on the preceding data sheets.
- Holes must be round within 0.05 mm.
- With hard materials the bore roughness should be from $R_Z$ = 10–30 µm for best results.
- Longitudinal rifles and spiral grooves should be avoided. These influence the sealing effectiveness.
- The bore must be free of oil, grease and chips.




### Setting Procedure

- Insert the plug in the tool, making sure that the sleeve is against the nosepiece (Fig. 1).
- After inserting the plug into the hole (making sure the tool is flush to the work surface) activate the tool to expand the plug. The mandrel will break apart when the proper tension has been reached (Fig. 2 and 3).
- When correctly installed, the tapered portion of the mandrel will be below the sleeve surface (Fig. 3).
  A projecting mandrel indicates an over tolerance hole or too thin wall thickness.

**Note:**

- The assembly of KOENIG-Expanders should only be done in a **clean working area.**
- Sleeve and mandrel of the plug should not be **cleaned or lubricated.**

### Tools

For trouble free installation of KOENIG-Expanders use the tools and appropriate components according to the data sheet.

### Plug Removal

With KOENIG-Expander HK Series plug removal is possible.

Procedure:

1. Drive the mandrel from the sleeve with a punch.
2. Drill out the sleeve and remove the mandrel.
3. Bore the hole to the **next larger Expander diameter** per the data sheet.
4. Clear chips, remnants of the sleeve, and oil and grease from the bore.
5. Install a new KOENIG-Expander.

**Note:** After plug removal always install the next larger size plug.