GH-S

High Quality Chamfer Tools for front and back chamfering of through holes.

GH-S Tools

- **Overview**
- **Setup**
- **Tool Series**
- **Programming**
- **Maintenance**

Quality Chamfering With GH-S

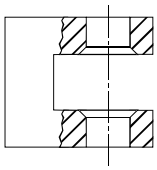
What is special about GH-S?

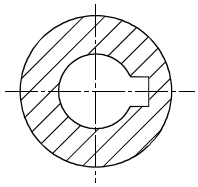
The HEULE GH-S twin-bladed chamfering tool was designed to offer high quality front and back chamfers in a single machining operation. A unique cutting geometry creates a superior surface finish while available carbide-TiN blades increase tool life. GH-S chamfers the front and back edge of through holes without reversing the spindle or indexing the work piece. The GH-S tool is available with TiN coated HSS and solid carbide inserts.

When should you use GH-S?

The GH-S tool is ideal for the following applications:

- Inside only of a cavity or slot when the top of the part must be un-machined yet the front and back of the inside requires chamfering.
- Slotted hole or keyway where the interrupted cut would cause problems for single bladed tools.
- Deep holes which can benefit from GH-S's twin blades.
- Applications with holes down to Ø4mm.





The GH-S is the original HEULE chamfering tool and adapts to the widest range of burr problems. Each Heule tool has unigue functions and some overlap.

Cofa is ideal for deburring uneven surfaces.
Defa is best suited for controlled size chamfers
GH-S is suited for general chamfering of through holes.
SNAP is an alternative to GH-S for holes over 8mm.

Tool Sizes & Tool Series:

Tool Series are groups of tools in the GH-S and Defa lines that use common spare parts. The tool is defined by the specific tool size. Many tool sizes use the same shanks, bodies, and spare parts.

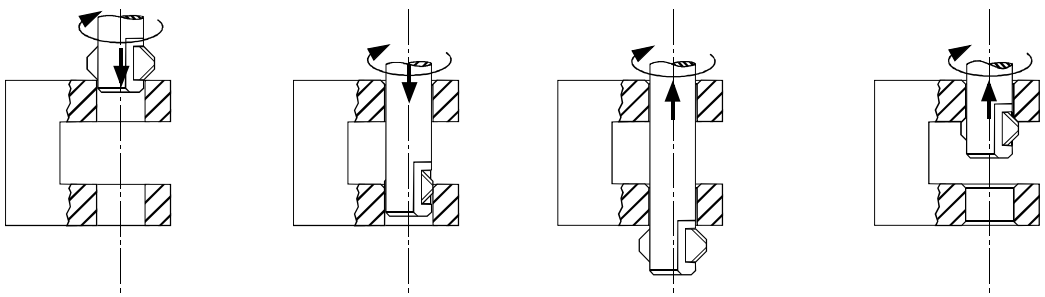
Tool Series	Tool Sizes within the Series
4-10	4-4.5, 4.5-5, 5-5.5, 5.5-6, 6-7, 7-8, 8-10
10-18	10-12, 12-14, 14-16, 16-18
18-22	18-20, 20-22
22-28	22-25, 25-28
28-34	28-31, 31-34
34-42	34-48, 38-42
42-54	42-48, 48-54
54-70	54-62, 62-70
70-100	70-80, 80-90, 90-100

How To Use This Catalog

- Use the **'Hole Range'** to select the largest tool that will fit the application.
- Check the maximum chamfer size to confirm the tool will meet the needs of the application.
- Order the same size **'Blade Set'** as tool holder. Blade sets are sold separately.

How does the GH-S tool work?

- Two cutting inserts work together by means of a patented control system. The two inserts begin to cut the top chamfer at the desired angle.
- As the cutting force exceeds the spring tension force, the cutting inserts stop cutting and collapse into the tool body.
- The **'Gliding Edge' of the inserts** prevents damage to the bore as the tool passes through.
- When the cutting inserts clear the far side of the hole, the inserts spring out into cutting position.
- The back chamfer is now cut while the tool is being removed in a working feed. Again the blades will collapse and the bore will not be damaged during tool removal.



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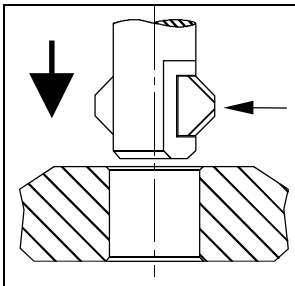
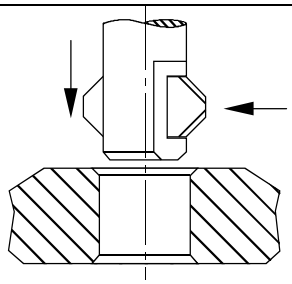
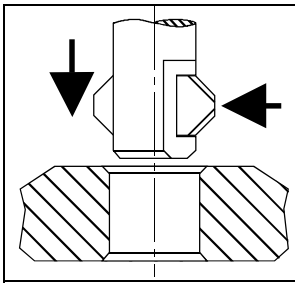
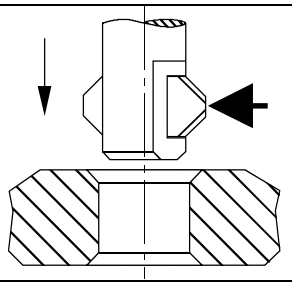
Getting the right chamfer with GH-S

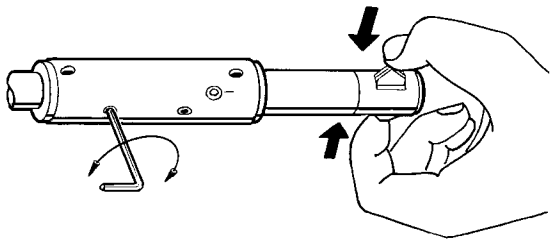
How to adjust the Chamfer Size

When working with the GH-S tool it is important to know that the chamfer size is affected by the material being machined, the feed rate, and the adjustable blade force. If the chamfer is too large or too small, the feed rate or blade tension can be adjusted to change the chamfer size.

	
Small Chamfer • small blade tension • high feed rate	Medium Chamfer • small blade tension • low feed rate
	
Medium Chamfer • large blade tension • high feed rate	Large Chamfer • large blade tension • low feed rate

How to adjust the Blade Tension

The blade tension is the force necessary to push the blades into the tool body. This force can be felt by hand when pushing on the blades. Increasing or decreasing the blade tension will change the chamfer size accordingly.



- Increase the chamfer size and the blade tension by turning the **"tension adjusting set screw"** clockwise.

- Decrease the chamfer size and the blade tension by turning the **"tension adjusting set screw"** counter-clockwise.

Adjusting the ØD2

The measurement across the blades does not effect the chamfer size and **must not be changed**.

- Do Not Adjust the ØD2
- Adjusting the ØD2 can result in tool or part damage.

See pages 17 & 18 for more information on setting up the tool.

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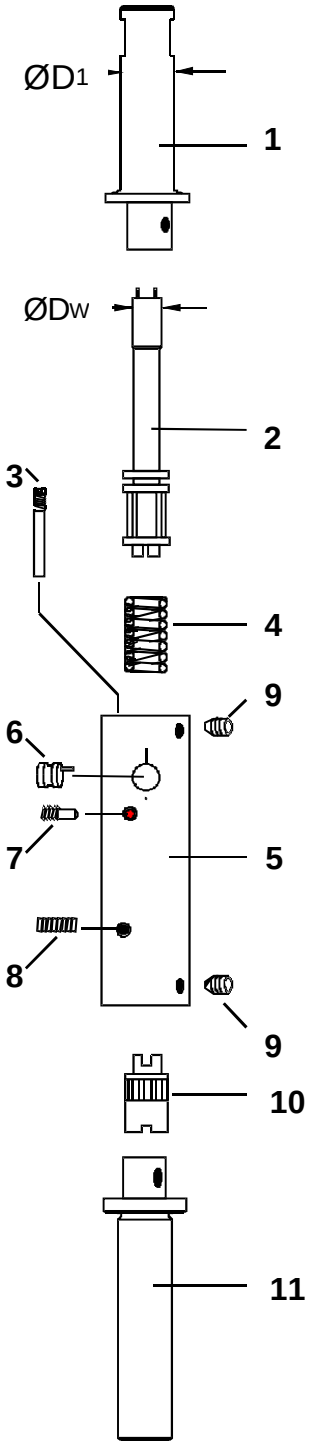
GH-S Series 4-10 Spare Parts



Pos	Qty	Order #	Description
1	1	*see below*	Blade Housing
2	1	*see below*	Blade Control
3	1	**GH-S-X-0001**	Positioning Screw 4-10
4	1	**GH-S-T-0001**	Torsion Spring 4-10
5	1	**GH-S-G-0001**	Tool Body 4-10
6	1	**GH-S-E-0001**	Eccentric Cam 4-10
7	1	**GH-H-S-0301**	Set Screw 4-10
8	1	**GH-H-S-0101**	Tension Screw 4-10
9	2	**GH-H-S-0201**	Clamping Screw 4-28
10	1	**GH-S-C-0001**	Gear Wheel 4-10
11	1	*see page 11*	Shank

Tool Size	Pos. 1 Blade Housing		Pos. 2 Blade Control	
	Order #	ØD1	Order #	ØDw
4-4.5/15	**GH-S-N-0001**[1]	3.8	**GH-S-W-0002**[1]	2
4.5-5/15	**GH-S-N-0004**[1]	4.3	**GH-S-W-0002**[1]	2
5-5.5/15	**GH-S-N-0006**[1]	4.8	**GH-S-W-0002**[1]	2
5.5-6/15	**GH-S-N-0008**[1]	5.3	**GH-S-W-0002**[1]	2
6-7/20	**GH-S-N-0010**[1]	5.8	**GH-S-W-0604**[1]	3.6
7-8/20	**GH-S-N-0012**[1]	6.5	**GH-S-W-0604**[1]	3.6
8-10/20	**GH-S-N-0016**[1]	7.5	**GH-S-W-0604**[1]	3.6
4-4.5/30	**GH-S-N-0002**	3.8	**GH-S-W-0003**	2
4.5-5/30	**GH-S-N-0005**	4.3	**GH-S-W-0003**	2
5-5.5/30	**GH-S-N-0007**	4.8	**GH-S-W-0003**	2
5.5-6/30	**GH-S-N-0009**	5.3	**GH-S-W-0003**	2
6-7/34	**GH-S-N-0011**	5.8	**GH-S-W-0605**	3.6
7-8/34	**GH-S-N-0013**	6.5	**GH-S-W-0605**	3.6
8-10/34	**GH-S-N-0017**	7.5	**GH-S-W-0605**	3.6
4-4.5/60	**GH-S-N-0032**	3.8	**GH-S-W-0027**	2
4.5-5/60	**GH-S-N-0033**	4.3	**GH-S-W-0027**	2
5-5.5/60	**GH-S-N-0034**	4.8	**GH-S-W-0027**	2
5.5-6/60	**GH-S-N-0035**	5.3	**GH-S-W-0027**	2
6-7/60	**GH-S-N-0036**	5.8	**GH-S-W-0628**	3.6
7-8/60	**GH-S-N-0037**	6.5	**GH-S-W-0628**	3.6
8-10/60	**GH-S-N-0038**	7.5	**GH-S-W-0628**	3.6

[1] *Non-Stock Standard item with extended delivery time.*

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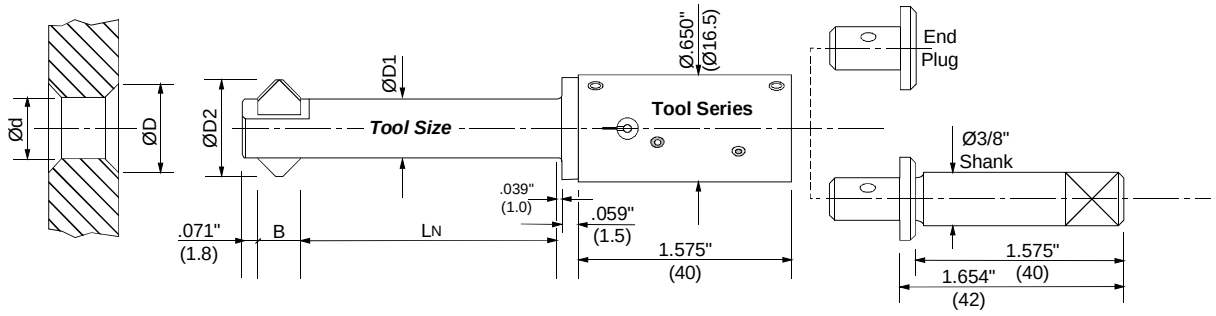
GH-S Chamfering Tools

Tool Series

4-10



GH-S Tool Holders, without blades				Order #		
Ød				GH-S-O-		
Tool Size & Hole Range	ØD1	B	LN	3/8" shank	end plug	No shank[1]
4-4.5	**3.8**	**3.2**	15	**1791**[4]	**1830**[4]	**1600**[1, 4]
.157-.177	*.150*	*.126*	30	**1792**	**1831**	**1601**[1]
			60	**1793**	**1832**	**1602**[1]
4.5-5	**4.3**	**3.2**	15	**1794**[4]	**1833**[4]	**1609**[1, 4]
.177-.197	*.169*	*.126*	30	**1795**	**1834**	**1610**[1]
			60	**1796**	**1835**	**1611**[1]
5-5.5	**4.8**	**3.2**	15	**1797**[4]	**1836**[4]	**1618**[1, 4]
.197-.217	*.189*	*.126*	30	**1798**	**1837**	**1619**[1]
			60	**1799**	**1838**	**1620**[1]
5.5-6	**5.3**	**3.2**	15	**1800**[4]	**1839**[4]	**1627**[1, 4]
.217-.236	*.209*	*.126*	30	**1801**	**1840**	**1628**[1]
			60	**1802**	**1841**	**1629**[1]
6-7	**5.8**	**4.0**	20	**1803**[4]	**1843**[4]	**1636**[1, 4]
.236-.276	*.228*	*.157*	34	**1804**	**1844**	**1637**[1]
			60	**1805**	**1845**	**1638**[1]
7-8	**6.5**	**4.0**	20	**1806**[4]	**1846**[4]	**1645**[1, 4]
.276-.315	*.256*	*.157*	34	**1807**	**1847**	**1646**[1]
			60	**1808**	**1848**	**1647**[1]
8-10	**7.5**	**6.0**	20	**1809**[4]	**1849**[4]	**1654**[1, 4]
.315-.394	*.295*	*.236*	34	**1810**	**1850**	**1655**[1]
			60	**1811**	**1851**	**1656**[1]

GH-S Blade Sets					Order #	
	ØD2[2]		ØD[3]		GH-S-M-	
Tool Size	*Over-the-Blade Ø*		*Maximum Chamfer*	*Chamfer Angle*	HSS-TiN	Carb.-TiN
4-4.5	**5.2** *.205*		**5.0** *.197*	90°	**0801**	**1801**
	5.1 *.201*		**4.9** *.193*	60°	**0900**[4]	**1900**[4]
4.5-5	**6.1** *.240*		**5.9** *.232*	90°	**0802**	**1802**
	5.6 *.220*		**5.4** *.213*	60°	**0901**[4]	**1901**[4]
5-5.5	**6.6** *.260*		**6.4** *.252*	90°	**0803**	**1803**
	6.1 *.240*		**5.9** *.232*	60°	**0902**[4]	**1902**[4]
5.5-6	**7.1** *.280*		**6.9** *.272*	90°	**0804**	**1804**
	6.6 *.260*		**6.4** *.252*	60°	**0903**[4]	**1903**[4]
6-7	**7.4** *.291*		**7.2** *.283*	90°	**0805**	**1805**
	7.4 *.291*		**7.2** *.283*	60°	**0904**[4]	**1904**[4]
7-8	**8.4** *.331*		**8.2** *.323*	90°	**0806**	**1806**
	8.1 *.319*		**7.9** *.311*	60°	**0905**[4]	**1905**[4]
8-10	**11.2** *.441*		**11.0** *.433*	90°	**0807**	**1807**
	10.2 *.402*		**10.0** *.394*	60°	**0906**[4]	**1906**[4]

[1] *Non-standard shanks sold separately; see page 11. End plug must be used when holding tool over Ø16.5mm(Ø.650") tool body.*

[2] *Preset diameter ØD2 must not be changed (tolerance +0/-.1mm) .*

[3] *Maximum chamfer is dependent upon material, blade force, and feed rate.*

[4] *Non-Stock Standard item with extended delivery time and minimum order.*

Example Order:

1 pc GH-S-O-1807 GH-S Tool Holder 7-8/34 3/8" shank

5 set GH-S-M-1806 GH-S Blades Carb-TiN 90° 7-8

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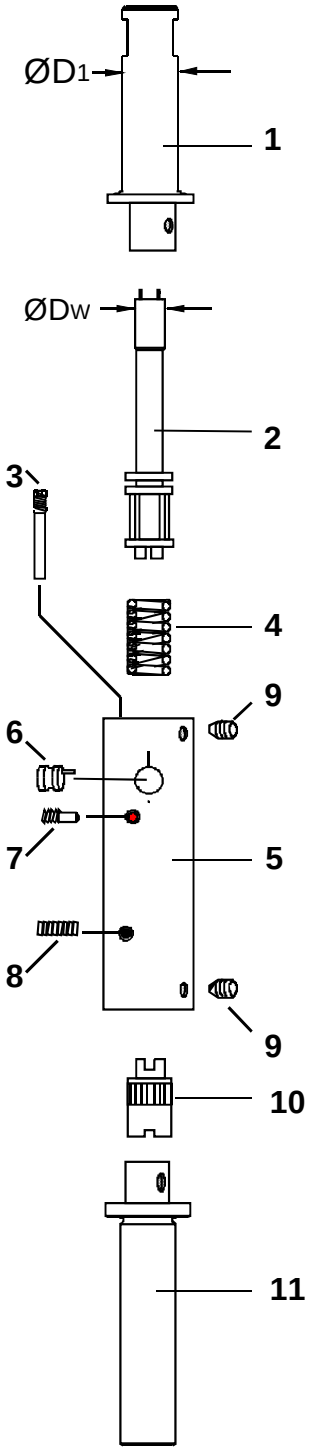
GH-S Series 10-22 Spare Parts



Pos	Qty	Order #	Description
1	1	*see below*	Blade Housing
2	1	*see below*	Blade Control
3	1	**GH-S-X-0006**	Positioning Screw 4-10
4	1	**GH-S-T-0006**	Torsion Spring 10-28
5a	1	**GH-S-G-0011**	Tool Body 10-18
5b	1	**GH-S-G-0013**	Tool Body 18-22
6	1	**GH-S-E-0003**	Eccentric Cam 10-22
7	1	**GH-H-S-0302**	Set Screw 10-28
8	1	**GH-H-S-0102**	Tension Screw 10-22
9	2	**GH-H-S-0201**	Clamping Screw 4-28
10	1	**GH-S-C-0008**	Gear Wheel 10-28
11	1	*see page 11*	Shank

Tool Size	Pos. 1 Blade Housing		Pos. 2 Blade Control	
	Order #	D1	Order #	Dw
10-12/30	**GH-S-N-0020**	9.5	**GH-S-W-0608**	4.5
12-14/30	**GH-S-N-0022**	11	**GH-S-W-0611**	5.5
14-16/30	**GH-S-N-0024**	13	**GH-S-W-0611**	5.5
16-18/30	**GH-S-N-0026**	15	**GH-S-W-0611**	5.5
18-20/30	**GH-S-N-0028**	16.5	**GH-S-W-0620**	8.0
20-22/30	**GH-S-N-0030**	18.5	**GH-S-W-0620**	8.0
10-12/60	**GH-S-N-0021**	9.5	**GH-S-W-0609**	4.5
12-14/60	**GH-S-N-0023**	11	**GH-S-W-0612**	5.5
14-16/60	**GH-S-N-0025**	13	**GH-S-W-0612**	5.5
16-18/60	**GH-S-N-0027**	15	**GH-S-W-0612**	5.5
18-20/60	**GH-S-N-0029**	16.5	**GH-S-W-0621**	8.0
20-22/60	**GH-S-N-0031**	18.5	**GH-S-W-0621**	8.0
10-12/100[1]	**GH-S-N-0039**[1]	9.5	**GH-S-W-0629**[1]	4.5
12-14/100[1]	**GH-S-N-0040**[1]	11	**GH-S-W-0630**[1]	5.5
14-16/100[1]	**GH-S-N-0041**[1]	13	**GH-S-W-0630**[1]	5.5
16-18/100[1]	**GH-S-N-0042**[1]	15	**GH-S-W-0630**[1]	5.5
18-20/100[1]	**GH-S-N-0043**[1]	16.5	**GH-S-W-0631**[1]	8.0
20-22/100[1]	**GH-S-N-0044**[1]	18.5	**GH-S-W-0631**[1]	8.0

[1] *Non-Stock Standard item with extended delivery time.*

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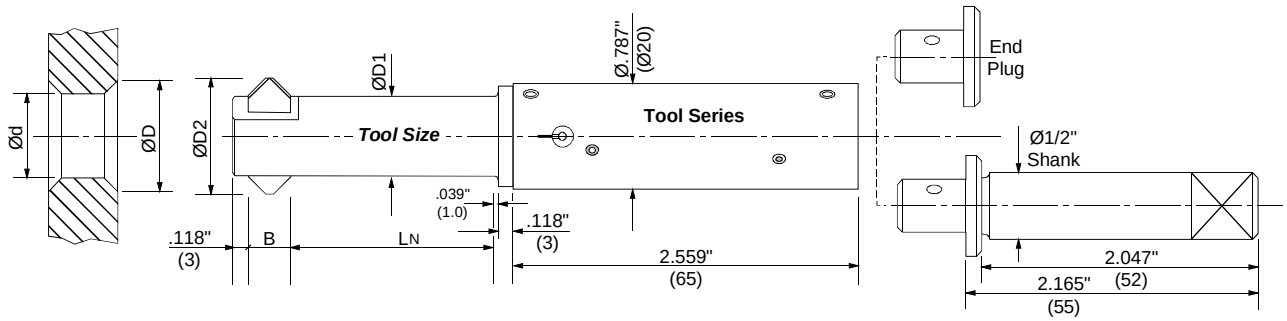
Includes 10-18 & 18-22

GH-S Chamfering Tools

Tool Series

10-22



GH-S Tool Holders, without blades				Order #		
Ød				GH-S-O-		
Tool Size & Hole Range	∅D1	B	LN	½" shank	end plug	No shank[1]
10 - 12	**9.5**	**6.0**	30	**1812**	**1853**	**1663**[1]
.394-.472	*.374*	*.236*	60	**1813**	**1854**	**1664**[1]
			100[4]	**1814**[4]	**1855**[4]	**1665**[1, 4]
12 - 14	**11**	**8.0**	30	**1815**	**1856**	**1672**[1]
.472-.551	*.433*	*.315*	60	**1816**	**1857**	**1673**[1]
			100[4]	**1817**[4]	**1858**[4]	**1674**[1, 4]
14 - 16	**13**	**8.0**	30	**1818**	**1859**	**1681**[1]
.551-.630	*.512*	*.315*	60	**1819**	**1860**	**1682**[1]
			100[4]	**1820**[4]	**1861**[4]	**1683**[1, 4]
16 - 18	**15**	**8.0**	30	**1821**	**1862**	**1690**[1]
.630-.709	*.591*	*.315*	60	**1822**	**1863**	**1691**[1]
			100[4]	**1823**[4]	**1864**[4]	**1692**[1, 4]
18 - 20	**16.5**	**8.0**	30	**1824**	**1865**	**1699**[1]
.709-.787	*.650*	*.315*	60	**1825**	**1866**	**1700**[1]
			100[4]	**1826**[4]	**1867**[4]	**1701**[1, 4]
20 - 22	**18.5**	**8.0**	30	**1827**	**1868**	**1708**[1]
.787-.866	*.728*	*.315*	60	**1828**	**1869**	**1709**[1]
			100[4]	**1829**[4]	**1870**[4]	**1710**[1, 4]

[1] *Non-standard shanks sold separately; see page 11. End plug must be used when holding tool over Ø20mm(Ø.787") tool body.*

[2] *Preset diameter ØD2 must not be changed (tolerance +0/-.1mm).*

GH-S Blade Sets					Order #
	ØD2[2]	ØD[3]			GH-S-M-
Tool Size	*Over-the-Blade Ø*	*Maximum Chamfer*	*Chamfer Angle*	HSS-TiN	Carb.-TiN
10 - 12	**13.2** *.520*	**13.0** *.512*	90°	**0808**	**1808**
	12.2 *.480*	**12.0** *.472*	60°	**0907**[4]	**1907**[4]
12 - 14	**16.2** *.638*	**16.0** *.630*	90°	**0809**	**1809**
	14.8 *.583*	**14.6** *.575*	60°	**0908**[4]	**1908**[4]
14 - 16	**18.2** *.717*	**18.0** *.709*	90°	**0810**	**1810**
	16.8 *.661*	**16.6** *.654*	60°	**0909**[4]	**1909**[4]
16 - 18	**20.2** *.795*	**20.0** *.787*	90°	**0811**	**1811**
	18.8 *.740*	**18.6** *.732*	60°	**0910**[4]	**1910**[4]
18 - 20	**22.2** *.874*	**22.0** *.866*	90°	**0812**	**1812**
	20.6 *.811*	**20.4** *.803*	60°	**0911**[4]	**1911**[4]
20 - 22	**24.3** *.957*	**24.0** *.945*	90°	**0813**	**1813**
	22.6 *.890*	**22.4** *.882*	60°	**0912**[4]	**1912**[4]

[3] *Maximum chamfer is dependent upon material, blade force, and feed rate.*

[4] *Non-Stock Standard item with extended delivery time and minimum order.*

Example Order:

1 pc GH-S-O-1866 GH-S Tool Holder 18-20/60 End Plug
5 set GH-S-M-1812 GH-S Blades Carb-TiN 90° 18-20

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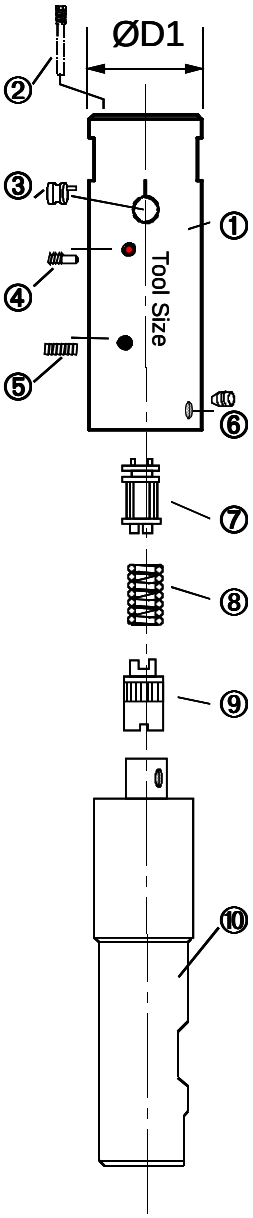
GH-S Series 22-42 Spare Parts



Tool Size	Position 1 Tool Body w/ standard ØD1		Position 2 Positioning Screw	Position 3 Eccentric Cam
	Order #	ØD1	Order #	Order #
22-25	**GH-S-G-0023**	20.5	**GH-S-X-0006**	**GH-S-E-0003**
25-28	**GH-S-G-0024**	23	**GH-S-X-0006**	**GH-S-E-0004**
28-31	**GH-S-G-0025**	26	**GH-S-X-0007**	**GH-S-E-0005**
31-34	**GH-S-G-0026**	29	**GH-S-X-0007**	**GH-S-E-0006**
34-38	**GH-S-G-0027**	32	**GH-S-X-0007**	**GH-S-E-0007**
38-42	**GH-S-G-0028**	36	**GH-S-X-0007**	**GH-S-E-0008**

Tool Size	Position 4 Set Screw	Position 5 Tension Screw	Position 6 Clamping Screw
	Order #	Order #	Order #
22-25	**GH-H-S-0302**	**GH-H-S-0102**	**GH-H-S-0201**
25-28	**GH-H-S-0303**	**GH-H-S-0103**	**GH-H-S-0201**
28-31	**GH-H-S-0304**	**GH-H-S-0105**	**GH-H-S-0202**
31-34	**GH-H-S-0305**	**GH-H-S-0106**	**GH-H-S-0202**
34-38	**GH-H-S-0306**	**GH-H-S-0107**	**GH-H-S-0203**
38-42	**GH-H-S-0306**	**GH-H-S-0107**	**GH-H-S-0203**

Tool Size	Pos. 7 Blade Control	Pos. 8 Torsion Spring	Pos. 9 Gear Wheel
	Order #	Order #	Order #
22-25	**GH-S-W-0014**	**GH-S-T-0006**	**GH-S-C-0008**
25-28	**GH-S-W-0014**	**GH-S-T-0006**	**GH-S-C-0008**
28-31	**GH-S-W-0015**	**GH-S-T-0007**	**GH-S-C-0009**
31-34	**GH-S-W-0015**	**GH-S-T-0007**	**GH-S-C-0009**
34-38	**GH-S-W-0015**	**GH-S-T-0007**	**GH-S-C-0009**
38-42	**GH-S-W-0015**	**GH-S-T-0007**	**GH-S-C-0009**

Pos. 10 Shank / Extension Options
see pages 11 & 12 for all options

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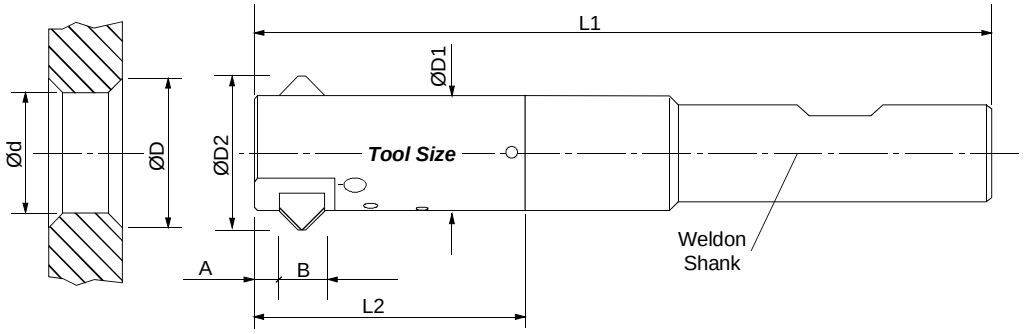
GH-S Chamfering Tools

Tool Series

22-42



GH-S Tool Holders, without blades						Order #	
Ød	Dimensions					GH-S-O-	
Tool Size & Hole Range	ØD1	A	B	L1	L2	Weldon	No Shank[1]
22 - 25 *.866-.984*	**20.5** *.807*	**4** *.157*	**9** *.354*	**158** *6.22*	**65** 2.559	**0173** (3/4")	**1723**[1] (10mm)[5]
25 - 28 *.984-1.102*	**23** *.906*	**4** *.157*	**9** *.354*	**158** *6.22*	**65** *2.559*	**0174** (3/4")	**1726**[1] (10mm)[5]
28 - 31 *1.102-1.220*	**26** *1.024*	**5** *.197*	**10** *.394*	**160** *6.299*	**74** *2.913*	**0175** (1")	**1729**[1] (12mm)[5]
31 - 34 *1.220-1.339*	**29** *1.142*	**5** *.197*	**10** *.394*	**160** *6.299*	**74** *2.913*	**0176** (1")	**1732**[1] (12mm)[5]
34 - 38 *1.339-1.496*	**32** *1.260*	**6** *.236*	**10** *.394*	**170** *6.693*	**79** *3.110*	**0177** (1")	**1735**[1] (18mm)[5]
38 - 42 *1.496-1.654*	**36** *1.417*	**6** *.236*	**10** *.394*	**170** *6.693*	**79** *3.110*	**0178** (1")	**1738**[1] (18mm)[5]

[1] *Non-standard shanks sold separately; see pages 11 & 12.*

[5] *Diameter of connection when choosing non-standard shanks.*

GH-S Blade Sets				Order #	
	ØD2[2]	ØD[3]		GH-S-M-	
Tool size	*Over-the-Blade Ø*	*Maximum Chamfer*	Chamfer Angle	HSS-TiN	Carb.-TiN
22 - 25	**27.3** *1.075*	**27.0** *1.063*	90°	**0816**	**1814**
	25.4 *1.000*	**25.1** *.988*	60°	**0913**[4]	**1913**[4]
25 - 28	**30.2** *1.189*	**30.0** *1.181*	90°	**0817**	**1815**
	28.4 *1.118*	**28.1** *1.106*	60°	**0914**[4]	**1914**[4]
28 - 31	**33.4** *1.315*	**33.0** *1.299*	90°	**0818**	**1816**
	31.0 *1.220*	**30.7** *1.209*	60°	**0915**[4]	**1915**[4]
31 - 34	**36.4** *1.433*	**36.0** *1.417*	90°	**0819**	**1817**
	34.4 *1.354*	**34.0** *1.339*	60°	**0916**[4]	**1916**[4]
34 - 38	**40.4** *1.591*	**40.0** *1.575*	90°	**0820**	**1818**
	38.0 *1.496*	**37.6** *1.480*	60°	**0917**[4]	**1917**[4]
38 - 42	**44.4** *1.748*	**44.0** *1.732*	90°	**0821**	**1819**
	42.2 *1.661*	**41.8** *1.646*	60°	**0918**[4]	**1918**[4]

[2] *Preset diameter ØD2 must not be changed (tolerance +0/-.1mm).*

[3] *Maximum chamfer is dependent upon material, blade force, and feed rate.*

[4] *Non-Stock Standard item with extended delivery time and minimum order.*

Example Order:

1 pc GH-S-O-0175 GH-S Tool Holder 28-31 1" Weldon

5 set GH-S-M-1816 GH-S Blades Carb-TiN 90° 28-31

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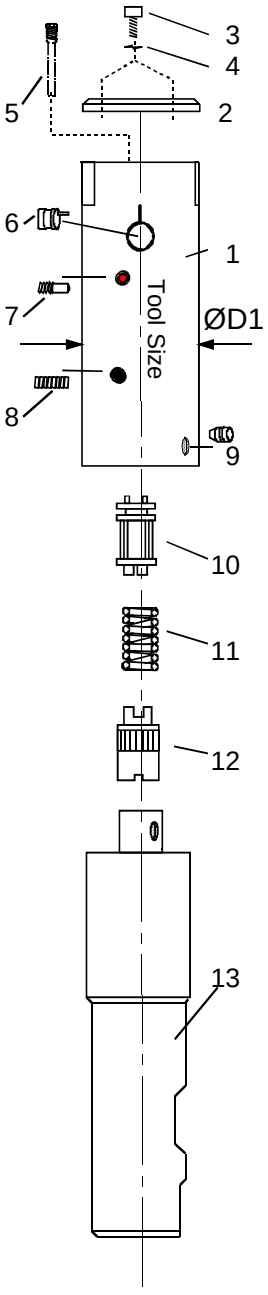
GH-S Series 42-100 Spare Parts



Tool Size	Position 1 Tool Body w/ standard ØD1		Position 2 End Cap	Position 3 Cap Screw	Position 4 Spring Washer
	Order #	ØD1	Order #	Order #	Order #
42-48	**GH-S-G-0029**	40	**GH-S-D-0009**	**GH-H-S-0524**	**GH-H-U-0201**
48-54	**GH-S-G-0030**	46	**GH-S-D-0010**	**GH-H-S-0524**	**GH-H-U-0201**
54-62	**GH-S-G-0031**	52	**GH-S-D-0011**	**GH-H-S-0526**	**GH-H-U-0202**
62-70	**GH-S-G-0032**	60	**GH-S-D-0012**	**GH-H-S-0526**	**GH-H-U-0202**
70-80	**GH-S-G-0033**	68	**GH-S-D-0013**	**GH-H-S-0527**	**GH-H-U-0203**
80-90	**GH-S-G-0034**	78	**GH-S-D-0014**	**GH-H-S-0527**	**GH-H-U-0203**
90-100	**GH-S-G-0035**	88	**GH-S-D-0015**	**GH-H-S-0527**	**GH-H-U-0203**

Tool Size	Position 5 Positioning Pin	Position 6 Eccentric Cam	Position 7 Set Screw	Position 8 Tension Screw
	Order #	Order #	Order #	Order #
42-48	**GH-S-X-0011**	**GH-S-E-0009**	**GH-H-S-0311**	**GH-S-X-0014**
48-54	**GH-S-X-0011**	**GH-S-E-0010**	**GH-H-S-0312**	**GH-S-X-0015**
54-62	**GH-S-X-0012**	**GH-S-E-0011**	**GH-H-S-0313**	**GH-S-X-0016**
62-70	**GH-S-X-0012**	**GH-S-E-0012**	**GH-H-S-0314**	**GH-S-X-0017**
70-80	**GH-S-X-0013**	**GH-S-E-0013**	**GH-H-S-0316**	**GH-S-X-0018**
80-90	**GH-S-X-0013**	**GH-S-E-0014**	**GH-H-S-0317**	**GH-S-X-0019**
90-100	**GH-S-X-0013**	**GH-S-E-0015**	**GH-H-S-0318**	**GH-S-X-0020**

Tool Size	Pos. 9 Clamping Screw	Pos. 10 Blade Control	Pos. 11 Torsion Spring	Pos. 12 Gear Wheel
	Order #	Order #	Order #	Order #
42-48	**GH-H-S-0204**	**GH-S-W-0016**	**GH-S-T-0009**	**GH-S-C-0010**
48-54	**GH-H-S-0204**	**GH-S-W-0016**	**GH-S-T-0009**	**GH-S-C-0010**
54-62	**GH-H-S-0205**	**GH-S-W-0017**	**GH-S-T-0010**	**GH-S-C-0011**
62-70	**GH-H-S-0205**	**GH-S-W-0017**	**GH-S-T-0010**	**GH-S-C-0011**
70-80	**GH-H-S-0206**	**GH-S-W-0018**	**GH-S-T-0011**	**GH-S-C-0012**
80-90	**GH-H-S-0206**	**GH-S-W-0018**	**GH-S-T-0011**	**GH-S-C-0012**
90-100	**GH-H-S-0206**	**GH-S-W-0018**	**GH-S-T-0011**	**GH-S-C-0012**

Pos. 13 Shank / Extension Options
see pages 11 & 12 for all options

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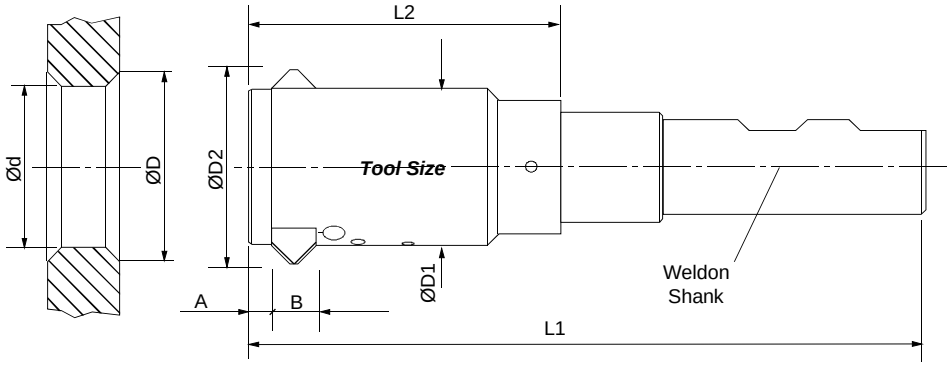
GH-S Chamfering Tools

Tool Series

42-100



GH-S Tool Holders, without blades						Order #	
Ød	Dimensions					GH-S-O-	
Tool Size & Hole Range	ØD1	A	B	L1	L2	Weldon	No Shank[1]
42-48 *1.654-1.890*	**40** *1.575*	**8** *.315*	**16** *.630*	**230** *9.055*	**130** *5.118*	**1742**[4] (32mm)	**1741**[1,4] (22mm)[5]
48-54 *1.890-2.126*	**46** *1.811*	**8** *.315*	**16** *.630*	**230** *9.055*	**130** *5.118*	**1745**[4] (32mm)	**1744**[1,4] (22mm)[5]
54-62 *2.126-2.441*	**52** *2.047*	**10** *.394*	**20** *.787*	**250** *9.843*	**148** *5.827*	**1748**[4] (32mm)	**1747**[1,4] (28mm)[5]
62-70 *2.441-2.756*	**60** *2.362*	**10** *.394*	**20** *.787*	**250** *9.843*	**148** *5.827*	**1751**[4] (32mm)	**1750**[1,4] (28mm)[5]
70-80 *2.756-3.150*	**68** *2.677*	**12** *.472*	**24** *.945*	**290** *11.417*	**180** *7.087*	**1754**[4] (40mm)	**1753**[1,4] (36mm)[5]
80-90 *3.150-3.543*	**78** *3.071*	**12** *.472*	**24** *.945*	**290** *11.417*	**180** *7.087*	**1757**[4] (40mm)	**1756**[1,4] (36mm)[5]
90-100 *3.543-3.937*	**88** *3.465*	**12** *.472*	**24** *.945*	**290** *11.417*	**180** *7.087*	**1760**[4] (40mm)	**1759**[1,4] (36mm)[5]

[1] *Non-standard shanks sold separately; see page 11 & 12.*

[5] *Diameter of connection when choosing non-standard shanks.*

GH-S Blade Sets				Order #
	ØD2[2]	ØD[3]		GH-S-M-
Tool size	*Over-the-Blade Ø*	*Maximum Chamfer*	Chamfer Angle	HSS-TiN	Carb.-TiN
42-48	**52.6** *2.071*	**52** *2.047*	90°	**0822**[4]	**1820**[4]
48-54	**58.6** *2.307*	**58** *2.283*	90°	**0823**[4]	**1821**[4]
54-62	**68.5** *2.697*	**68** *2.677*	90°	**0824**[4]	**1822**[4]
62-70	**76.5** *3.012*	**76** *2.992*	90°	**0825**[4]	**1823**[4]
70-80	**88.5** *3.484*	**88** *3.465*	90°	**0826**[4]	**1824**[4]
80-90	**98.5** *3.878*	**98** *3.858*	90°	**0828**[4]	**1825**[4]
90-100	**108.5** *4.272*	**108** *4.252*	90°	**0829**[4]	**1826**[4]

[2] *Preset diameter ØD2 must not be changed (tolerance +0/-.1mm).*

[3] *Maximum chamfer is dependent upon material, blade force, and feed rate.*

[4] *Non-Stock Standard item with extended delivery time and minimum order.*

Example Order:

1 pc GH-S-O-1751 GH-S Tool Holder 62-70 32mm Weldon
5 set GH-S-M-1823 GH-S Blades Carb-TiN 90° 62-70

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Shank Options for GH-S Tools

Tool Series 4-10
∅3/8” straight shank **GH-S-S-0155**
End Plug 4-10 **GH-S-S-0090**
10mm straight shank **GH-S-S-0001**
Morse Taper 1 shank **GH-S-S-0002**[1]
16mm Weldon shank **GH-S-S-0036**[1]
ABS 25 shank **GH-S-A-0014**[1]
ABS 32 shank **GH-S-A-0015**[1]
ABS 40 shank **GH-S-A-0010**[1]
ABS 50 shank **GH-S-A-0011**[1]
Automotive Shank Tr 16x1.5 **GH-S-S-0101**[1]
Automotive Shank Tr 20x2 **GH-S-S-0111**[1]
Extension 50mm(1.97”)x∅16.5 **GH-S-R-0076**[1]
Extension 100mm(3.94”)x∅16.5 **GH-S-R-0077**[1]
Extension 50mm(5.91”)x∅16.5 **GH-S-R-0078**[1]

Tool Series 10-18
∅1/2” straight shank **GH-S-S-0156**
End Plug 4-10 **GH-S-S-0092**
12mm straight shank **GH-S-S-0013**
Morse Taper 1 shank **GH-S-S-0016**[1]
Morse Taper 2 shank **GH-S-S-0017**[1]
16mm Weldon shank **GH-S-S-0034**[1]
20mm Weldon shank **GH-S-S-0037**
¾” Weldon shank **GH-S-S-0157**
ABS 32 shank **GH-S-A-0013**[1]
ABS 50 shank **GH-S-A-0017**[1]
Automotive Shank Tr 25x2 **GH-S-S-0108**[1]
Extension 50mm(1.97”)x∅20 **GH-S-R-0016**[1]
Extension 100mm(3.94”)x∅20 **GH-S-R-0017**[1]
Extension 150mm(5.91”)x∅20 **GH-S-R-0003**[1]

Tool Series 22-28
∅1/2” straight shank **GH-S-S-0156**
16mm Weldon shank(22-28) **GH-S-S-0034**[1]
20mm Weldon shank **GH-S-S-0037**[1]
¾” Weldon shank **GH-S-S-0157**
ABS 25 shank **GH-S-A-0012**[1]
ABS 32 shank **GH-S-A-0013**[1]
ABS 40 shank **GH-S-A-0016**[1]
ABS 50 shank **GH-S-A-0017**[1]
Automotive Shank Tr 25x2 **GH-S-S-0108**[1]
Extension 50mm(1.97”)x∅20 **GH-S-R-0016**[1]
Extension 100mm(3.94”)x∅20 **GH-S-R-0017**[1]
Extension 150mm(5.91”)x∅20 **GH-S-R-0003**[1]

[1] *Non-Stock Standard Item with extended delivery time.*

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Shank Options for GH-S Tools

Tool Series 28-34
1" Weldon shank **GH-S-S-0163**
25mm Weldon shank **GH-S-S-0042**[1]
Morse Taper 3 shank **GH-S-S-0043**[1]
End Plug 26-35 **GH-S-S-0093**[1]
ABS 40 shank **GH-S-A-0036**[1]
ABS 50 shank **GH-S-A-0029**[1]
Extension 50mm(1.97")x∅26 **GH-S-R-0020**[1]
Extension 100mm(3.94")x∅26 **GH-S-R-0021**[1]
Extension 150mm(5.91")x∅26 **GH-S-R-0005**[1]

Tool Series 34-42
1" Weldon shank **GH-S-S-0158**
25mm Weldon shank **GH-S-S-0048**[1]
Morse Taper 3 shank **GH-S-S-0049**[1]
End Plug 32-46 **GH-S-S-0094**[1]
ABS 40 shank **GH-S-A-0037**[1]
ABS 50 shank **GH-S-A-0038**[1]
Extension 50mm(1.97")x∅32 **GH-S-R-0024**[1]
Extension 100mm(3.94")x∅32 **GH-S-R-0025**[1]
Extension 150mm(5.91")x∅32 **GH-S-R-0007**[1]

Tool Series 42-54
Morse Taper 4 **GH-S-S-0052**[1]
Ø32mm Weldon Shank **GH-S-S-0179**[1]
ABS 63 Shank **GH-S-A-0040**[1]
Extension 50mm(1.97")x Ø46 **GH-S-R-0028**[1]
Extension 100mm(3.94")x Ø46 **GH-S-R-0029**[1]
Extension 150mm(5.91")x Ø46 **GH-S-R-0009**[1]

Tangs for MT Shanks
MT1 Tang **GH-S-L-0001**[1]
MT2 Tang **GH-S-L-0002**[1]
MT3 Tang **GH-S-L-0003**[1]
MT4 Tang **GH-S-L-0004**[1]

Tool Series 54-70
Morse Taper 4 **GH-S-S-0055**[1]
Ø32mm Weldon Shank **GH-S-S-0177**[1]
ABS 63 Shank **GH-S-A-0019**[1]
Extension 50mm(1.97")x Ø52 **GH-S-R-0032**[1]
Extension 100mm(3.94")x Ø52 **GH-S-R-0033**[1]
Extension 150mm(5.91")x Ø52 **GH-S-R-0011**[1]

Tool Series 70-100
Morse Taper 4 **GH-S-S-0060**[1]
Ø40mm Weldon Shank **GH-S-S-0178**[1]
ABS 63 Shank **GH-S-A-0042**[1]
Extension 50mm(1.97")x Ø68 **GH-S-R-0036**[1]
Extension 100mm(3.94")x Ø68 **GH-S-R-0037**[1]
Extension 150mm(5.91")x Ø68 **GH-S-R-0043**[1]

[1] Non-Stock Standard Item with extended delivery time.

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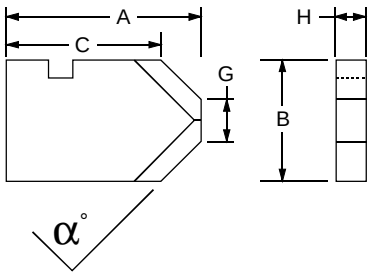
Chamfering Blades for GH-S



GH-S Blade Sets, 1set=2pieces								Order # GH-S-M-	
Tool Size	Chamfer Angle	B	H	A	C	G	ØD2[3]	HSS-TiN	Carbide-TiN
4 - 4.5	90°	**3.2**	**1**	**3.8** *.150*	**3.1**	**1.8** *.071*	**5.2** *.205*	**0801**	**1801**
	60°	*.126*	*.039*	**3.8** *.150*	*.122*	**1** *.039*	**5.1** *.201*	**0900**[1,2]	**1900**[1,2]
4.5 - 5	90°	**3.2**	**1**	**4.3** *.169*	**3.4**	**1.4** *.055*	**6.1** *.240*	**0802**	**1802**
	60°	*.126*	*.039*	**4.1** *.161*	*.134*	**1** *.039*	**5.6** *.220*	**0901**[1,2]	**1901**[1,2]
5 - 5.5	90°	**3.2**	**1**	**4.7** *.185*	**3.8**	**1.4** *.055*	**6.6** *.260*	**0803**	**1803**
	60°	*.126*	*.039*	**4.5** *.177*	*.150*	**1.0** *.039*	**6.1** *.240*	**0902**[1,2]	**1902**[1,2]
5.5 - 6	90°	**3.2**	**1**	**5.1** *.201*	**4.2**	**1.4** *.055*	**7.1** *.280*	**0804**	**1804**
	60°	*.126*	*.039*	**4.8** *.189*	*.165*	**1.0** *.039*	**6.6** *.260*	**0903**[1,2]	**1903**[1,2]
6 - 7	90°	**4**	**1.3**	**5.8** *.228*	**5.0**	**2.4** *.094*	**7.4** *.291*	**0805**	**1805**
	60°	*.157*	*.051*	**5.8** *.228*	*.197*	**1.2** *.047*	**7.4** *.291*	**0904**[1,2]	**1904**[1,2]
7 - 8	90°	**4**	**1.3**	**6.3** *.248*	**5.4**	**2.1** *.083*	**8.4** *.331*	**0806**	**1806**
	60°	*.157*	*.051*	**6.2** *.244*	*.213*	**1.2** *.047*	**8.1** *.319*	**0905**[1,2]	**1905**[1,2]
8 - 10	90°	**6**	**1.5**	**7.6** *.299*	**5.8**	**2.3** *.091*	**11.2** *.441*	**0807**	**1807**
	60°	*.236*	*.059*	**7.1** *.280*	*.228*	**1.3** *.051*	**10.2** *.402*	**0906**[1,2]	**1906**[1,2]
10 - 12	90°	**6**	**1.5**	**9.3** *.366*	**7.4**	**2.3** *.091*	**13.2** *.520*	**0808**	**1808**
	60°	*.236*	*.059*	**8.8** *.346*	*.291*	**1.3** *.051*	**12.2** *.480*	**0907**[1,2]	**1907**[1,2]
12 - 14	90°	**8**	**2**	**11.1** *.437*	**8.5**	**2.8** *.110*	**16.2** *.638*	**0809**	**1809**
	60°	*.315*	*.079*	**10.4** *.409*	*.335*	**1.4** *.055*	**14.8** *.583*	**0908**[1,2]	**1908**[1,2]
14 - 16	90°	**8**	**3**	**12.6** *.496*	**10.0**	**2.8** *.110*	**18.2** *.717*	**0810**	**1810**
	60°	*.315*	*.118*	**11.9** *.469*	*.394*	**1.4** *.055*	**16.8** *.661*	**0909**[1,2]	**1909**[1,2]
16 - 18	90°	**8**	**3**	**14.1** *.555*	**11.5**	**2.8** *.110*	**20.2** *.795*	**0811**	**1811**
	60°	*.315*	*.118*	**13.4** *.528*	*.453*	**1.4** *.055*	**18.8** *.740*	**0910**[1,2]	**1910**[1,2]
18 - 20	90°	**8**	**4**	**15.6** *.614*	**12.9**	**2.6** *.102*	**22.2** *.874*	**0812**	**1812**
	60°	*.315*	*.157*	**14.8** *.583*	*.508*	**1.4** *.055*	**20.6** *.811*	**0911**[1,2]	**1911**[1,2]
20 - 22	90°	**8**	**4**	**17.2** *.677*	**14.5**	**2.6** *.102*	**24.3** *.957*	**0813**	**1813**
	60°	*.315*	*.157*	**16.4** *.646*	*.571*	**1.4** *.055*	**22.6** *.890*	**0912**[1,2]	**1912**[1,2]

[1] Non-Stock Standard item with extended delivery time.
[2] Minimum order of 3 sets required.
[3] Over-the-Blade diameter, ØD2, when set in the tool. Tolerance is +0/-0.1mm (+0/-0.004").

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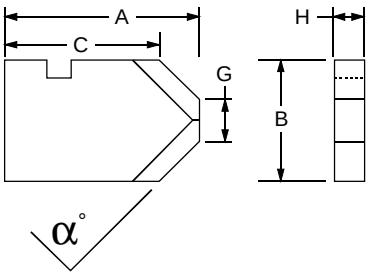

Chamfering Blades for GH-S

GH-S Blade Sets, 1set=2pieces								Order # GH-S-M-	
Tool Size	Chamfer Angle	B	H	A	C	G	ØD2[3]	HSS-TiN	Carbide-TiN
22 - 25	90°	**9**	**5**	**19.1** *.752*	**16.0**	**2.8** *.110*	**27.3** *1.075*	**0816**	**1814**
	60°	*.354*	*.197*	**18.2** *.717*	*.630*	**1.4** *.055*	**25.4** *1.000*	**0913**[1,2]	**1913**[1,2]
25 - 28	90°	**9**	**5**	**20.6** *.811*	**17.5**	**2.8** *.110*	**30.2** *1.189*	**0817**	**1815**
	60°	*.354*	*.197*	**19.7** *.776*	*.689*	**1.4** *.055*	**28.4** *1.118*	**0914**[1,2]	**1914**[1,2]
28 - 31	90°	**10**	**6**	**24.2** *.953*	**20.7**	**3.0** *.118*	**33.4** *1.315*	**0818**	**1816**
	60°	*.394*	*.236*	**23.2** *.913*	*.815*	**1.3** *.051*	**31.0** *1.220*	**0915**[1,2]	**1915**[1,2]
31 - 34	90°	**10**	**6**	**25.7** *1.012*	**22.2**	**3.0** *.118*	**36.4** *1.433*	**0819**	**1817**
	60°	*.394*	*.236*	**24.7** *.972*	*.874*	**1.3** *.051*	**34.4** *1.354*	**0916**[1,2]	**1916**[1,2]
34 - 38	90°	**10**	**6**	**28.2** *1.110*	**24.5**	**2.6** *.102*	**40.4** *1.591*	**0820**	**1818**
	60°	*.394*	*.236*	**27.0** *1.063*	*.965*	**1.3** *.051*	**38.0** *1.496*	**0917**[1,2]	**1917**[1,2]
38 - 42	90°	**10**	**6**	**32.2** *1.268*	**28.5**	**2.6** *.102*	**44.4** *1.748*	**0821**	**1819**
	60°	*.394*	*.236*	**31.1** *1.224*	*1.122*	**1.3** *.051*	**42.2** *1.661*	**0918**[1,2]	**1918**[1,2]
42-48	90°	**16**	**9**	**38.3**	**32**	**3.4**	**52.6**	**0822**	**1820**
		.630	*.354*	*1.508*	*1.260*	*.134*	*2.071*		
48-54	90°	**16**	**9**	**44.3**	**38**	**3.4**	**58.6**	**0823**	**1821**
		.630	*.354*	*1.744*	*1.496*	*.134*	*2.307*		
54-62	90°	**20**	**12**	**50.2**	**42**	**4.5**	**68.5**	**0824**	**1822**
		.787	*.472*	*1.976*	*1.654*	*.177*	*2.697*		
62-70	90°	**20**	**12**	**58.3**	**50**	**3.5**	**76.5**	**0825**	**1823**
		.787	*.472*	*2.295*	*1.969*	*.138*	*3.012*		
70-80	90°	**24**	**12**	**65.3**	**55**	**3.5**	**88.5**	**0826**	**1824**
		.945	*.472*	*2.571*	*2.165*	*.138*	*3.484*		
80-90	90°	**24**	**12**	**75.2**	**65**	**3.6**	**98.5**	**0828**	**1825**
		.945	*.472*	*2.961*	*2.559*	*.142*	*3.878*		
90-100	90°	**24**	**12**	**85.2**	**75**	**3.5**	**108.5**	**0829**	**1826**
		.945	*.472*	*3.354*	*2.953*	*.138*	*4.272*		

[1] Non-Stock Standard item with extended delivery time.
[2] Minimum order of 3 sets required.
[3] Over-the-Blade diameter, ØD2, when set in the tool. Tolerance is +0/-0.1mm (+0/-0.004").

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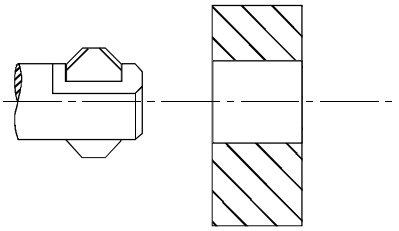
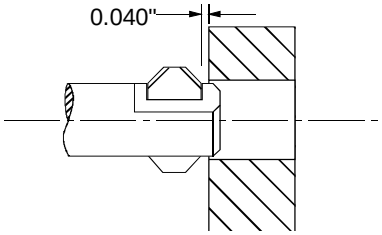
How To Program The GH-S Tool

Front and Back Chamfering



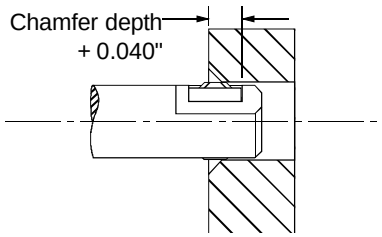
Step 1
N01 M03 Sxxx

See feed and speed chart for proper parameters.



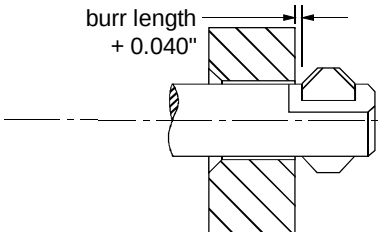
Step 2 (Rapid into position)
N02 M03 G00 Zxxx

Move the tool with rapid feed into position with the front of the cutting blade 0.040” above the part.



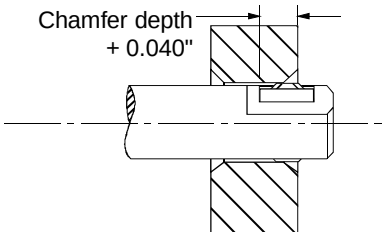
Step 3 (Cut Chamfer)
N03 M03 G01 Zxx Scs Fcf

Machine the part with cutting feed (cf) and speed (cs). Feed into part the chamfer depth +0.040” to ensure the blade has finished cutting.



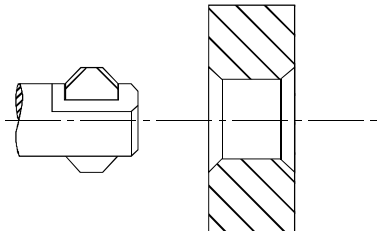
Step 4 (Rapid to back)
N04 M03 G00 Zxx Scs Frf

Move the tool through the part with rapid feed (rf) so the blade is 0.040” beyond the burr. The blade will not mark nor damage the through hole.



Step 5 (Cut back chamfer)
N05 M03 G01 Zxx Scs Fcf

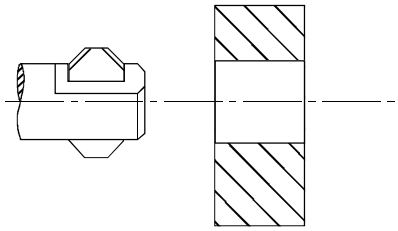
Machine the part with back cutting feed (cf) and speed (cs). Feed into part the chamfer depth +0.040” to ensure the blade has finished cutting the back chamfer.



Step 6 (Remove from the part)
N06 M03 G00 Zxx Scs Frf

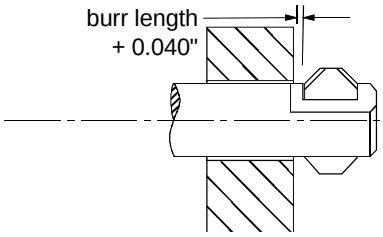
Remove the tool from the hole with rapid feed and proceed to the next hole. The blade will not mark nor damage the through hole.

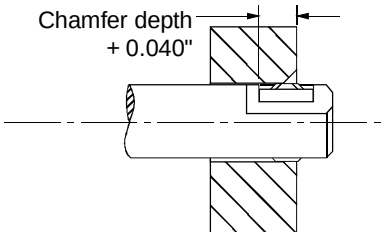
Back Chamfer Only

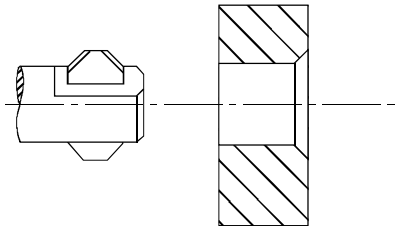


The GH-S tool can be placed into position behind the part with a rapid feed.

The top of the part will not be chamfered nor will the blades be damaged.







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Programming Information

Material		Feed	Speed -SFM	
		IPR	*HSS-TiN*	*(Carbide-TiN)*
Aluminum	150<Bn<250	.004-.012	145-190	180-235
Brass	150<Bn<250	.004-.012	160-210	200-260
Low Carbon Steel	100<Bn<225	.004-.008	100-145	120-180
Med. Carbon Steel	150<Bn<250	.004-.008	85-135	100-160
High Alloy Steel	200<Bn<350	.004-.008	40-60	60-90
Stainless Steel	150<Bn<300	.004-.008	20-40	30-60
Gray Cast Iron	150<Bn<220	.004-.012	70-100	90-130
Nodular Cast Iron	150<Bn<250	.004-.012	60-100	80-120
Nickel Base Alloy	20<Rc<32	.001-.004	10-20	10-30
Titanium	22<Rc<32	.001-.004	10-20	10-30

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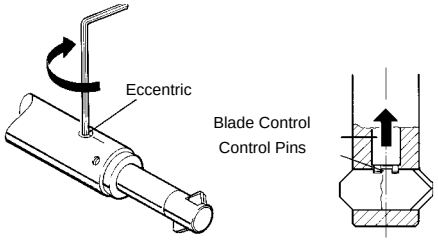
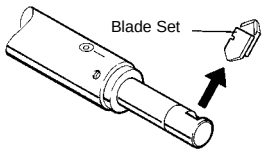
How to change the GH-S blades

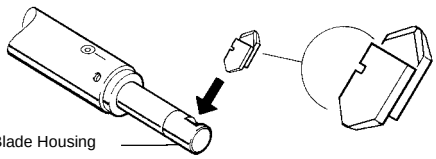
Step 1. Reduce the blade tension. Then with a 1.5mm hex wrench, turn the eccentric 180° until the eccentric notch is opposite the tool body notch. The blade control will be lifted so the control pins release the blades.



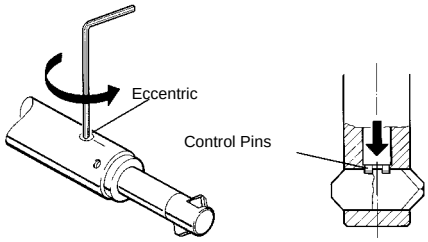
Step 2. Remove the blades from the housing.



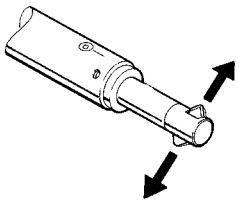
Step 3. Insert the clean new blade set so they are nearly flush with the blade housing. Ensure the notches are in the proper orientation.



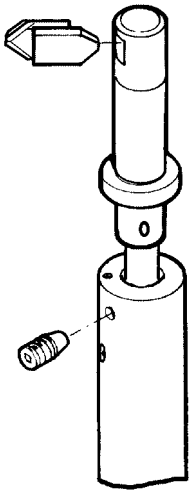
Step 4. Turn the eccentric back towards the tool body notch until a slight resistance is felt. **Do Not Use Force**.



Step 5. Slide one blade then the other until control pins engage the blades. Check that both blades move simultaneously.



Is There A Quicker Way?



- With a #8 Torx Driver, remove the clamping screw and lift the blade housing.
- Remove the old blades by pushing them through the window.
- Turn the blade housing ¼ turn to the right by observing the clamping screw hole in the blade housing and the clamping screw.
- Insert the new blade set into the blade window so that they are flush with the diameter of the housing.
- Let the housing down and gently wiggle it back and forth until the control pins engage and the housing sits flush with the tool body. **Do Not Use Force**.
- Ensure the clamping screw hole is aligned with the clamping screw and tighten the screw with a #8 Torx driver.

! The alignment of the clamping screw and the hole in the blade housing is CRITICAL.

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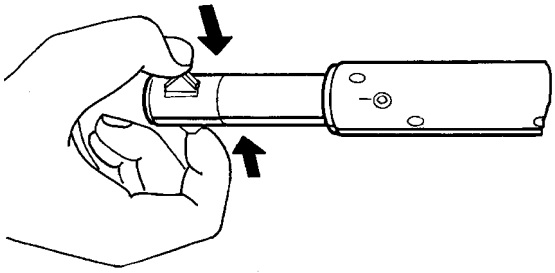
Setting Up the GH-S Tool

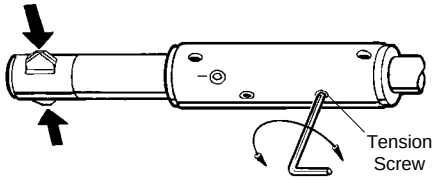
How Much Blade Force is Enough?

The size of the chamfer depends in part on the force behind the blades. A heavier force will cut a larger chamfer and a lesser force will cut a smaller chamfer. By adjusting the blade tension, the chamfer size can be adjusted. The chamfer size also depends upon the feed rate and part material.



How to Adjust the Blade Force

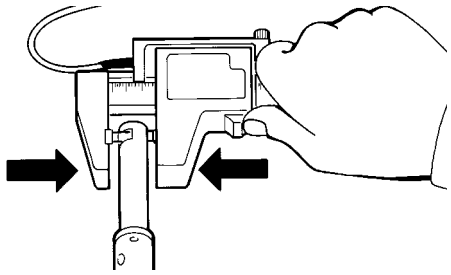
The tool body has a **'tension screw'** which can be used to adjust the force behind the blades. By turning this screw, the force will be increased or decreased.



- To increase the blade force and the chamfer size, turn the '**Tension Screw'** clockwise.
- To decrease the blade force and the chamfer size, turn the **'Tension Screw'** counter-clockwise.

How to check the Blade Force

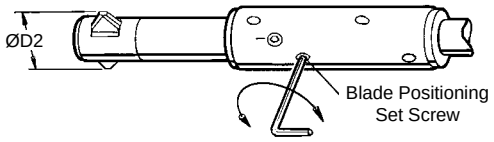
To maintain continuity and consistency, the GH-S tools can be set up with the assistance of the HEULE DPM-2 Force Caliper Gage. The DPM-2 can be used each time the blades are changed or the tension adjusted so that the blade tension can be set to a consistent value.



The Heule DPM2 Force Caliper Gage is battery operated and uses a digital readout to display the force. Using the DPM2 assures consistency in tool setup.

How to set the ØD2

Each GH-S tool size has a specific value for the ØD2. When using the tool, this dimension must not be changed and after each blade change or tool repair the ØD2 should be checked for conformity with the values of ØD2 given on pages 4, 6, 8, and 10. Deviation from these values can result in tool breakage.



Checking and Setting the ØD2

The ØD2 should be measured with a calipers or similar tool over the widest portion of the GH-S blades. If this measurement does not meet the specified value for each tool given on pages 4, 6, 8, and 10, then the blades will need adjustment.

- To reduce the over-the-blade dimension to match the specified measurement, turn the **"blade positioning set screw"** clockwise.
- To increase the over-the -blade dimension to match the specified measurements, turn the **"blade positioning set screw"** counter-clockwise.

The tolerance for ØD2 is +0.000" / -0.004"
+0mm / -0.1mm

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How to replace a blade control

A broken "Blade Control"?

The blade control must be replaced if the control pins are sheared off by mis-installed blades or if blade control is broken through a crash. The GH-S's modular design allows for the repair of the tool by replacing only the broken items.

Step 1

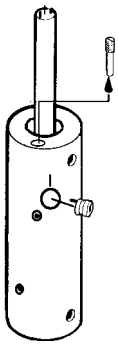
With the blades removed from the tool, use a #8 Torx wrench to remove the blade housing clamping screw.

Pull the blade housing off of the tool body.

Step 2

Use a small screwdriver to remove the positioning pin from the tool body.

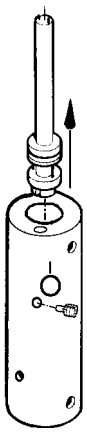
With the position pin removed, use a hex wrench to remove the eccentric cam from the tool body.



Step 3

Clear the red sealant from the chamfer adjusting screw and remove it.

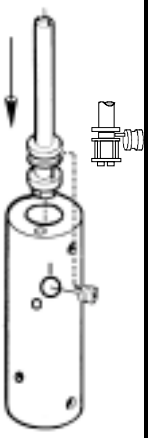
Pull the brass blade control out of the tool body. If the torsion spring comes with it, save the spring for re-installation.



Step 4

Insert the new brass blade control (with torsion spring if necessary).

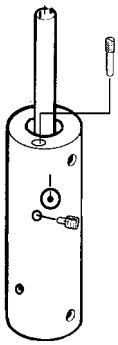
Set the eccentric cam in the tool body and ensure that the cam pin seats between the two discs of the blade control.



Step 5

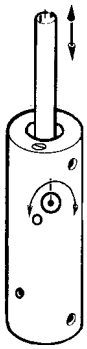
Reinstall the positioning pin until the head is just below the surface of the tool.

Reinstall the chamfer adjusting set screw until the head is just below the surface of the tool body.



Step 6

Use a 1.5mm hex wrench to turn the eccentric through several rotations and check that the blade control rises and falls with the turning of the eccentric.



Step 7

Align the screw hole in the blade housing with the screw hole in the tool body.

Reinstall the blade housing and tighten the screw with a #8 Torx wrench.

Step 8

Install new blades, set the blade ØD2, and set the blade tension. (*see pages 2, 17, & 18 if necessary*)

Seal the blade positioning set screw with red sealant and return the tool to service.

Important!

Set the ØD2 according to the directions on Page 18 and use the values for the correct tool size.

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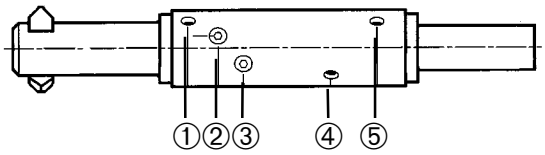
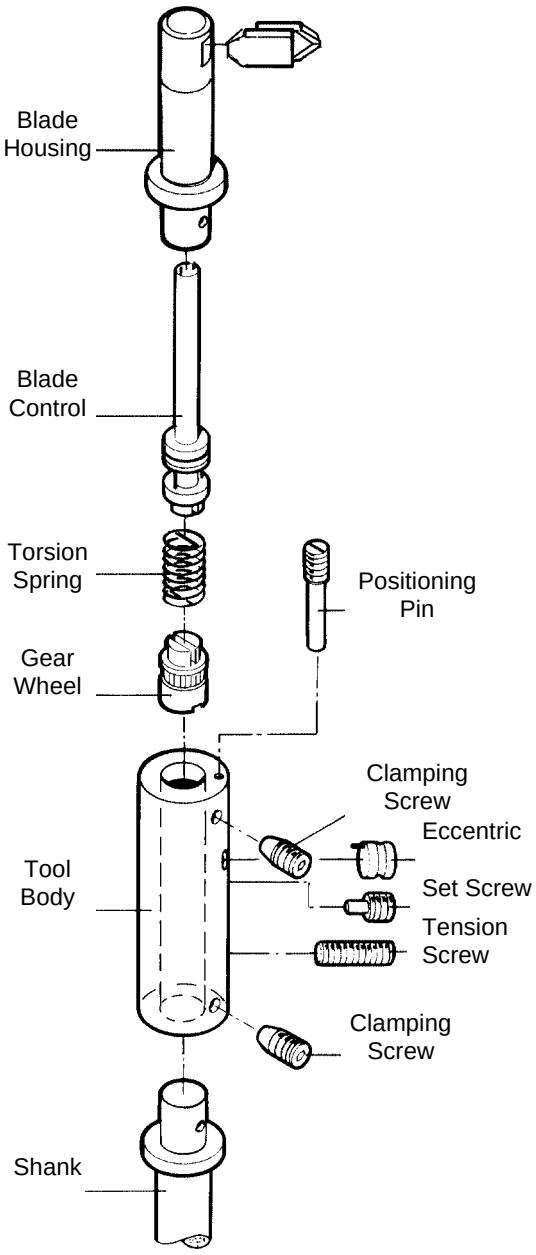
Reference and Accessories for GH-S

What do the screws do?

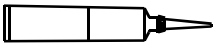
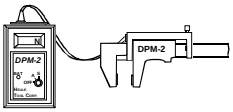
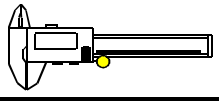


Pos	Description	Function
1	Clamping Screw (Blade Housing)	Holds the blade housing to the tool body. It must seat in the tapered pocket in the housing for maximum holding force.
2	Eccentric Cam	Disengages and engages the blade control pins from the blades making it possible to exchange the blades easily.
3	Set Screw (Blade Position)	Adjusts ØD2 setting. Must be set to the ØD2 specified by each tool.
4	Tension Screw	Adjusts the force behind the blades. Turn clockwise to increase tension, counter-clockwise to decrease tension.
5	Clamping Screw (Shank)	Holds the shank to the tool body. It must seat in the tapered pocket in the shank for maximum holding force.

What parts make up a GH-S tool?



Tools & Accessories

Item	Description	Order Number
	#8 Torx Wrench	HT-0001
	1.5mm Hex Wrench	HT-0010
	2mm Screw Driver	HT-0011
	Red Set Screw Sealant	HT-0012
	Heule Lithium Grease	HT-0013
	DPM-2 Force Calipers	DPM2
	Hand Held Calipers	*Not sold by Heule*

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Trouble Shooting Solutions

Problem	Probable Cause	Solution
Chamfer is too small.	• Blade force is too light. • Feed rate is too high. • Innaccurate position when transitioning from working and rapid feeds.	• Turn tension adjusting set screw clockwise. See "Getting The Right Chamfer" on page 2. • Reduce the feed rate. • Review the programming information and position references on page 15.
Chamfer is too large.	• Blade force is too high. • Feed rate is to low.	• Turn tension adjusting set screw counter-clockwise. See "Getting The Right Chamfer" on page 2. • Increase the feed rate.
Chamfer is inconsistent from part to part.	• Blade force is too light. • Blades are worn out.	• Turn tension adjusting set screw clockwise. See "Getting The Right Chamfer" on page 2. • Replace the blade set. See "Changing the Blades" on page 17.
Tool cuts poorly or does not cut at all.	• Incorrect over-the-blade diameter, ØD2 • Innaccurate position when transitioning from working and rapid feeds. • Too much runout.	• Re-set the ØD2 according to the dimensions given in the tool specifications on pages 4, 6, 8, & 10. • Review the programming information and position references on page 15. • Check holders or add a bushing.
Chamfer is larger on one side than the other	• Part surface is not flat • Tool is not centered in hole.	• Check part for positioning. • Center the tool in the hole.
Blades do not engage the blade control when changing.	• Too much blade tension.	• Turn tension adjusting set screw counter-clockwise. See "Getting The Right Chamfer" on page 2.
Blades do not fit into tool or are tight and do not slide easily.	• Incorrect blade size. • Burr or debris in window or on blades.	• Check part numbers or blade dimensions from catalog. • Ensure window and blades are clean and free of dirt or burrs.

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HEULE **APPLICATION DATA SHEET**
FOR DEBURRING/CHAMFERING/COUNTERSINKING

Application Data Sheet

Interest:

Front And Back Deburring	Back Only Deburring
Front And Back Chamfering	Back Only Chamfering
Combination Tooling	Front Countersinking
Back Spotfacing	Other _____

Today's Date _____ **Tel. No.** _____-_____

Individual to Contact _____ **Fax No.** _____-_____

Company Name _____

Mailing Address _____

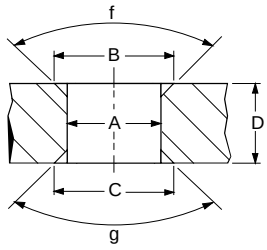
_____

City _____

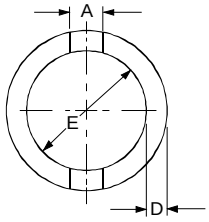
State _____ **Zip** _____

Problem Statement: (Include Dwg/Part Print)

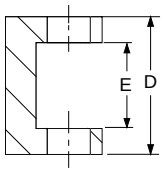
Part Configuration: (Fill in values that apply): REF: Part Name/Dwg. No. _____



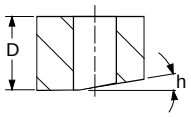
☐ Straight Hole Deburring/Chmf.



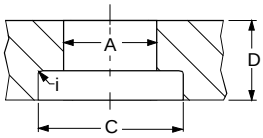
☐ Tube or I.D. Deburring



☐ Inline Holes Deburring/chmf.



☐ Irregular Surface



☐ Back Counterboring

A= _____ ± _____ **f=** _____

B= _____ ± _____ **g=** _____

C= _____ ± _____ **h=** _____

D= _____ **i=** _____

E= _____ Surface Finish req. _____

Other Information/Sketch: (incl. dwg./part print)

Material: _____ **Hardness:** _____

Production (Yr): _____ **Cycle Time:** _____

Sequence (1,2,3,etc.):

__ drill ___ Bore ____ Tap ___ Ream ___ deburr/chmf

Machine Type: _____

Shank Size: _____

Feed Unit: ___ Hydrl. ____ Pneum ____ Elec.

Back Feed Control? Y or N **Interrupted Cuts/Cross Holes?** Y or N *(give details)*

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