

4445 Standard  
Shank Design

4345 Close Guide  
Shank Design

Material:  
 Tungsten Carbide Standard  
 Cermet Tip Optional  
 (Specify "-BKCER" in part no.)

**Specify:** Series/Wire Feed Angle - Hole Size/Bond Length - Length - Options

**Example:**

4445-2020-S

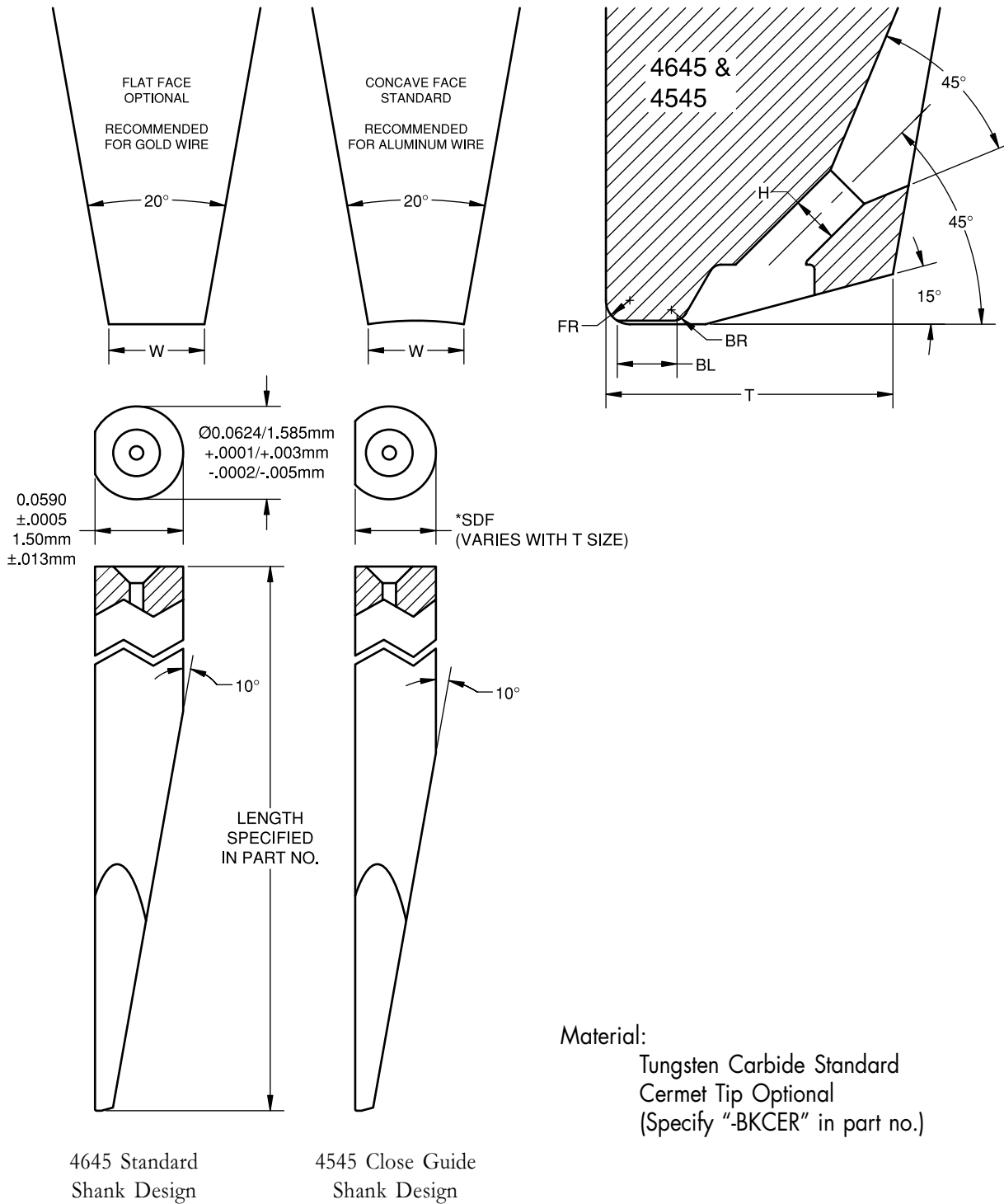
4345-1510-3/4-F-V-BKCER

\*Specify "-V" when ordering with Cermet tip

+DASH NUMBER	H in./ $\mu$ m $\pm$ .0002/5	BL in./ $\mu$ m $\pm$ .0002/5	W in./ $\mu$ m $\pm$ .0002/5	FR in./ $\mu$ m $\pm$ .0002/5	BR in./ $\mu$ m $\pm$ .0002/5	T in./ $\mu$ m $\pm$ .0005/13	SUGGESTED WIRE DIAMETER in./ $\mu$ m
*1305	.0013/33	.0005/13	.0025/64	.0005/13	.0005/13	.0080/203	.0007/18 to .0008/20
*1307	.0013/33	.0007/18	.0025/64	.0005/13	.0005/13	.0080/203	
1315	.0013/33	.0015/38	.0030/76	.0010/25	.0006/15	.0080/203	
*1305A	.0013/33	.0005/13	.0025/64	.0005/13	.0000/0	.0080/203	
*1307A	.0013/33	.0007/18	.0025/64	.0005/13	.0000/0	.0080/203	
1310A	.0013/33	.0010/25	.0030/76	.0010/25	.0000/0	.0080/203	
1315A	.0013/33	.0015/38	.0030/76	.0010/25	.0000/0	.0090/229	
1320A	.0013/33	.0020/51	.0030/76	.0010/25	.0000/0	.0090/229	
*1505	.0015/38	.0005/13	.0025/64	.0005/13	.0005/13	.0120/305	
*1507	.0015/38	.0007/18	.0025/64	.0005/13	.0005/13	.0120/305	
*1510	.0015/38	.0010/25	.0030/76	.0010/25	.0006/15	.0120/305	
*1513	.0015/38	.0013/33	.0030/76	.0010/25	.0006/15	.0120/305	
1515	.0015/38	.0015/38	.0030/76	.0010/25	.0006/15	.0120/305	
1520	.0015/38	.0020/51	.0030/76	.0010/25	.0006/15	.0120/305	
1525	.0015/38	.0025/64	.0030/76	.0010/25	.0006/15	.0120/305	
1540	.0015/38	.0040/102	.0030/76	.0010/25	.0006/15	.0120/305	
*1505A	.0015/38	.0005/13	.0025/64	.0005/13	.0000/0	.0120/305	
*1507A	.0015/38	.0007/18	.0025/64	.0005/13	.0000/0	.0120/305	
*1510A	.0015/38	.0010/25	.0030/76	.0010/25	.0000/0	.0120/305	
1515A	.0015/38	.0015/38	.0030/76	.0010/25	.0000/0	.0120/305	
1519A	.0015/38	.0019/48	.0030/76	.0010/25	.0000/0	.0120/305	
1520A	.0015/38	.0020/51	.0030/76	.0010/25	.0000/0	.0120/305	
*1510B	.0015/38	.0010/25	.0030/76	.0004/10	.0004/10	.0080/203	
*2010	.0020/51	.0010/25	.0040/102	.0010/25	.0006/15	.0120/305	
2015	.0020/51	.0015/38	.0040/102	.0010/25	.0006/15	.0120/305	
2020	.0020/51	.0020/51	.0040/102	.0010/25	.0006/15	.0120/305	
2025	.0020/51	.0025/64	.0040/102	.0010/25	.0006/15	.0120/305	
2030	.0020/51	.0030/76	.0040/102	.0010/25	.0006/15	.0120/305	
2015A	.0020/51	.0015/38	.0040/102	.0010/25	.0000/0	.0120/305	
2020A	.0020/51	.0020/51	.0040/102	.0010/25	.0000/0	.0120/305	
2025A	.0020/51	.0025/64	.0040/102	.0010/25	.0000/0	.0120/305	
2520	.0025/64	.0020/51	.0040/102	.0010/25	.0006/15	.0130/330	.0010/25 to .0013/33
2525	.0025/64	.0025/64	.0040/102	.0010/25	.0006/15	.0130/330	
2530	.0025/64	.0030/76	.0040/102	.0015/38	.0006/15	.0140/356	
2540	.0025/64	.0040/102	.0040/102	.0015/38	.0006/15	.0150/381	
2525A	.0025/64	.0025/64	.0040/102	.0010/25	.0000/0	.0130/330	
3025	.0030/76	.0025/64	.0050/127	.0015/38	.0010/25	.0160/406	.0015/38 to .0018/46
3030	.0030/76	.0030/76	.0050/127	.0015/38	.0010/25	.0160/406	
3035	.0030/76	.0035/89	.0050/127	.0015/38	.0010/25	.0170/432	
3040	.0030/76	.0040/102	.0050/127	.0015/38	.0010/25	.0170/432	
3045	.0030/76	.0045/114	.0050/127	.0015/38	.0010/25	.0180/457	
3050	.0030/76	.0050/127	.0050/127	.0015/38	.0010/25	.0180/457	
3035A	.0030/76	.0035/89	.0050/127	.0015/38	.0000/0	.0170/432	
3045A	.0030/76	.0045/114	.0050/127	.0015/38	.0000/0	.0180/457	
3535	.0035/89	.0035/89	.0060/152	.0015/38	.0010/25	.0180/457	.0020/51
3540	.0035/89	.0040/102	.0060/152	.0015/38	.0010/25	.0190/483	
3535A	.0035/89	.0035/89	.0060/152	.0015/38	.0000/0	.0180/457	
4035	.0040/102	.0035/89	.0060/152	.0015/38	.0010/25	.0190/483	.0020/51 to .0025/64
4045	.0040/102	.0045/114	.0060/152	.0015/38	.0010/25	.0200/508	
4040A	.0040/102	.0040/102	.0060/152	.0015/38	.0000/0	.0200/508	
4540	.0045/114	.0040/102	.0070/178	.0020/51	.0010/25	.0220/559	.0030/76
4550	.0045/114	.0050/127	.0070/178	.0020/51	.0000/0	.0230/584	
4555	.0045/114	.0055/140	.0070/178	.0020/51	.0010/25	.0230/584	
4560	.0045/114	.0060/152	.0070/178	.0020/51	.0010/25	.0240/610	
4545A	.0045/114	.0045/114	.0070/178	.0020/51	.0000/0	.0220/559	

\*Flat Face Only

Other part numbers are available. *Dimensions in inches unless otherwise specified*



**Specify:** Series/Wire Feed Angle - Hole Size/Bond Length - Length - Options

**Example:**

4645-2020-S

4545-1510-3/4-F-V-BKCER

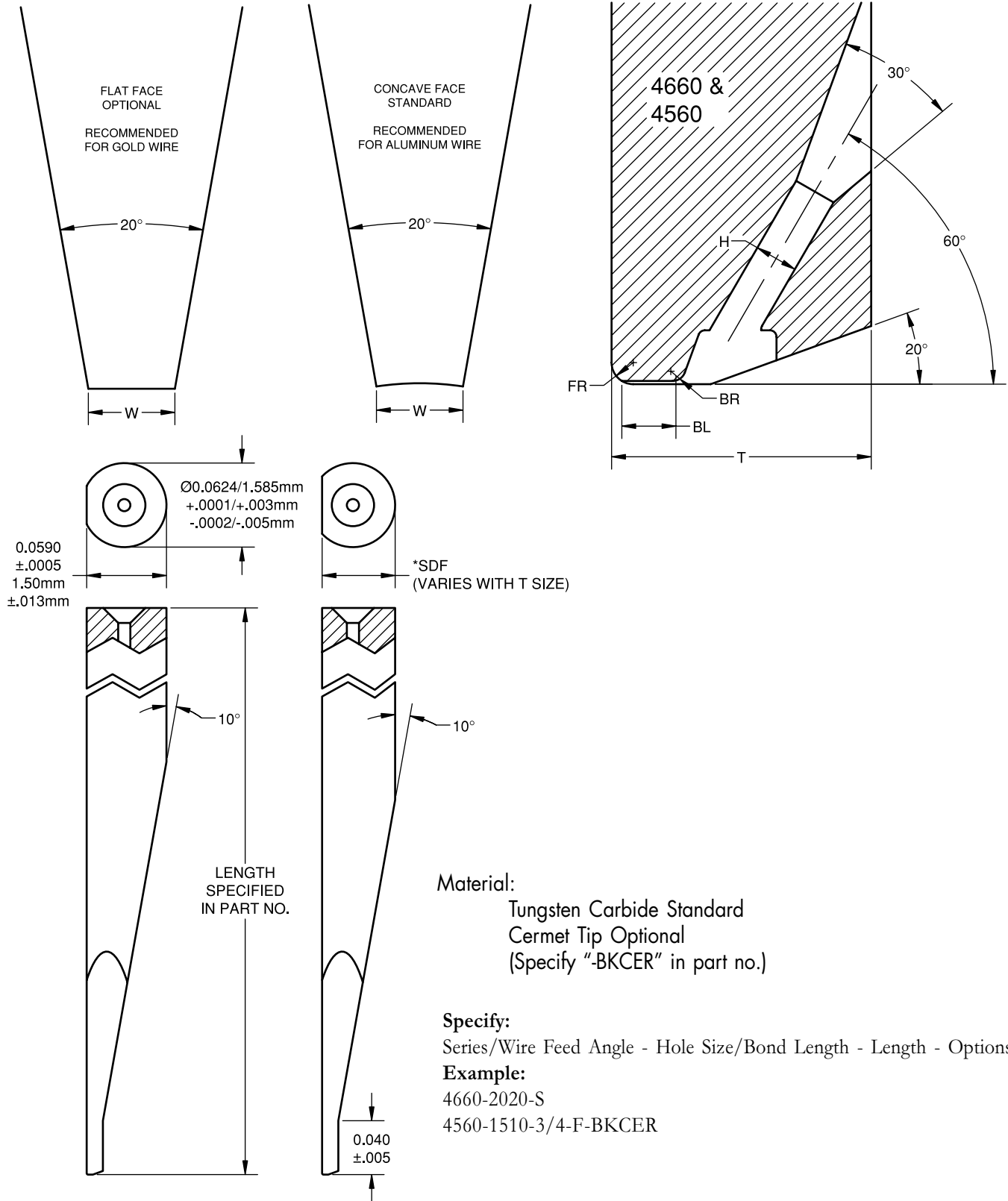
\*Specify "-V" when ordering with Cermet tip

DASH NUMBER	H in./ $\mu$ m $\pm$ .0002/5	BL in./ $\mu$ m $\pm$ .0002/5	W in./ $\mu$ m $\pm$ .0002/5	FR in./ $\mu$ m $\pm$ .0002/5	BR in./ $\mu$ m $\pm$ .0002/5	T in./ $\mu$ m $\pm$ .0005/13	SUGGESTED WIRE DIAMETER in./ $\mu$ m
0.0013 hole uses the same specifications as the 0.0015 hole except for the hole dimension							.0007/18 to .0008/20
0.0014 hole uses the same specifications as the 0.0015 hole except for the hole dimension							
<b>*1505</b>	.0015/38	.0005/13	.0025/64	.0005/13	.0005/13	.0080/203	
<b>*1507</b>	.0015/38	.0007/18	.0025/64	.0005/13	.0005/13	.0080/203	
<b>*1510</b>	.0015/38	.0010/25	.0030/76	.0010/25	.0006/15	.0090/229	
<b>*1513</b>	.0015/38	.0013/33	.0030/76	.0010/25	.0006/15	.0090/229	
<b>1515</b>	.0015/38	.0015/38	.0030/76	.0010/25	.0006/15	.0090/229	
<b>1520</b>	.0015/38	.0020/51	.0030/76	.0010/25	.0006/15	.0100/254	
<b>1525</b>	.0015/38	.0025/64	.0030/76	.0010/25	.0006/15	.0100/254	
<b>*1510A</b>	.0015/38	.0010/25	.0030/76	.0010/25	.0000/0	.0090/229	
<b>1515A</b>	.0015/38	.0015/38	.0030/76	.0010/25	.0000/0	.0090/229	
0.0018 hole uses the same specifications as the 0.0020 hole except for the hole dimension							.0008/20 to .0010/25
<b>*2007</b>	.0020/51	.0007/18	.0040/102	.0005/13	.0005/13	.0100/254	.0010/25
<b>*2010</b>	.0020/51	.0010/25	.0040/102	.0010/25	.0006/15	.0100/254	
<b>2015</b>	.0020/51	.0015/38	.0040/102	.0010/25	.0006/15	.0110/279	
<b>2020</b>	.0020/51	.0020/51	.0040/102	.0010/25	.0006/15	.0110/279	
<b>2025</b>	.0020/51	.0025/64	.0040/102	.0010/25	.0006/15	.0120/305	
<b>2030</b>	.0020/51	.0030/76	.0040/102	.0010/25	.0006/15	.0120/305	
<b>2035</b>	.0020/51	.0035/89	.0040/102	.0010/25	.0006/15	.0130/330	
<b>2040</b>	.0020/51	.0040/102	.0040/102	.0010/25	.0006/15	.0130/330	
<b>2050</b>	.0020/51	.0050/127	.0040/102	.0010/25	.0006/15	.0140/356	
0.0022 hole uses the same specifications as the 0.0025 hole except for the hole dimension							.0010/25 to .0013/33
<b>2520</b>	.0025/64	.0020/51	.0040/102	.0010/25	.0006/15	.0130/330	
<b>2525</b>	.0025/64	.0025/64	.0040/102	.0010/25	.0006/15	.0140/356	
<b>2530</b>	.0025/64	.0030/76	.0040/102	.0010/25	.0006/15	.0140/356	
<b>2535</b>	.0025/64	.0035/89	.0040/102	.0015/38	.0006/15	.0150/381	
<b>2540</b>	.0025/64	.0040/102	.0040/102	.0015/38	.0006/15	.0150/381	
<b>2525A</b>	.0025/64	.0025/64	.0040/102	.0010/25	.0000/0	.0130/330	.0015/38 to .0018/46
<b>3020</b>	.0030/76	.0020/51	.0050/127	.0015/38	.0010/25	.0170/432	
<b>3025</b>	.0030/76	.0025/64	.0050/127	.0015/38	.0010/25	.0180/457	
<b>3030</b>	.0030/76	.0030/76	.0050/127	.0015/38	.0010/25	.0180/457	
<b>3035</b>	.0030/76	.0035/89	.0050/127	.0015/38	.0010/25	.0190/483	
<b>3040</b>	.0030/76	.0040/102	.0050/127	.0015/38	.0010/25	.0190/483	
<b>3050</b>	.0030/76	.0050/127	.0050/127	.0015/38	.0010/25	.0200/508	.0030/76
<b>4545</b>	.0045/114	.0045/114	.0070/178	.0020/51	.0010/25	.0240/610	
<b>4560</b>	.0045/114	.0060/152	.0070/178	.0020/51	.0010/25	.0270/686	

\*Flat Face Only

Other part numbers are available.

*Dimensions in inches unless otherwise specified*



**Material:**  
 Tungsten Carbide Standard  
 Cermet Tip Optional  
 (Specify "BK CER" in part no.)

**Specify:**  
 Series/Wire Feed Angle - Hole Size/Bond Length - Length - Options

**Example:**  
 4660-2020-S  
 4560-1510-3/4-F-BK CER

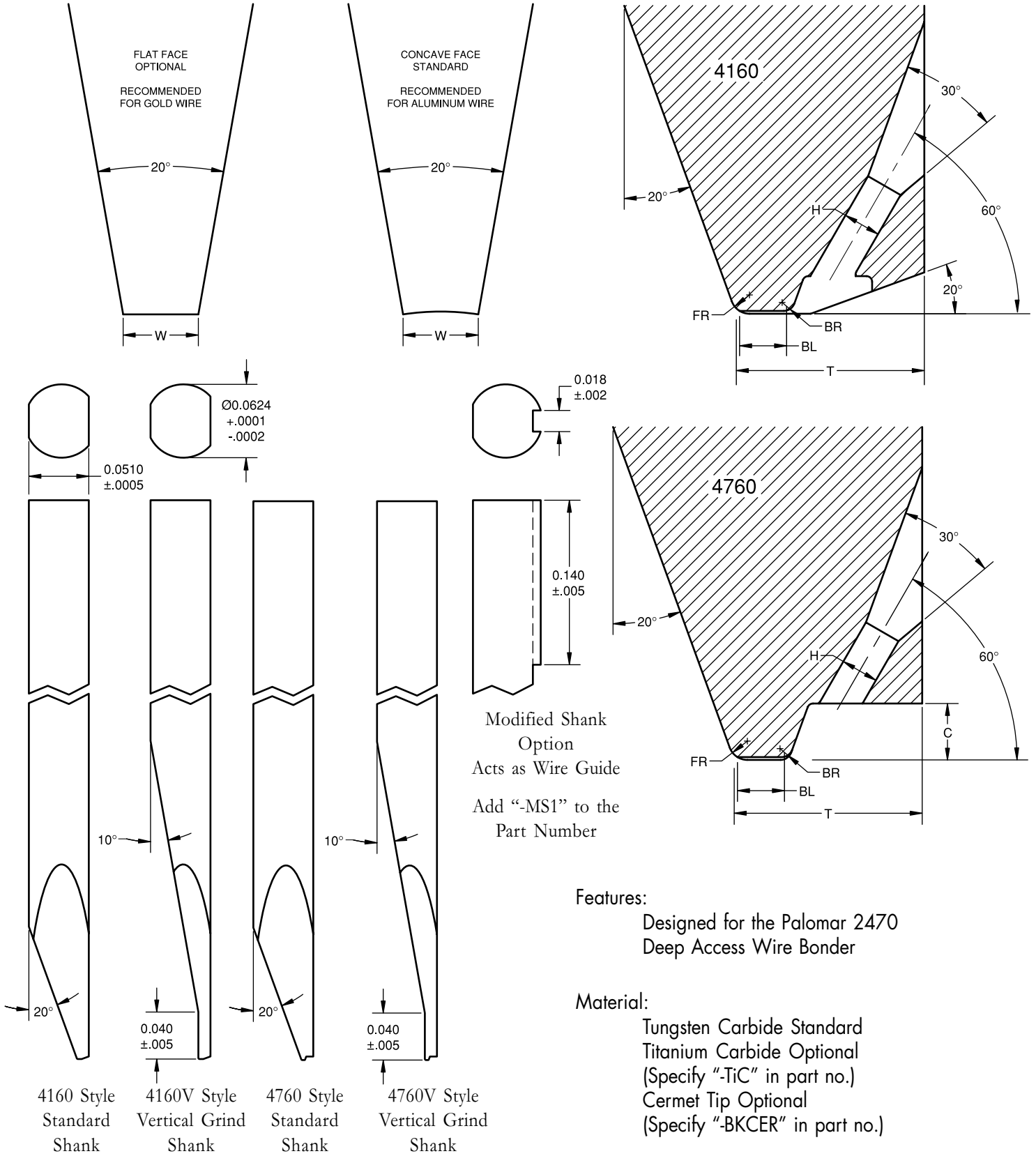
4660 Standard  
Shank Design

4560 Close Guide  
Shank Design

DASH NUMBER	H in./ $\mu$ m $\pm$ .0002/5	BL in./ $\mu$ m $\pm$ .0002/5	W in./ $\mu$ m $\pm$ .0002/5	FR in./ $\mu$ m $\pm$ .0002/5	BR in./ $\mu$ m $\pm$ .0002/5	T in./ $\mu$ m $\pm$ .0005/13	SUGGESTED WIRE DIAMETER in./ $\mu$ m
0.0013 hole uses the same specifications as the 0.0015 Hole except for the hole dimension							.0007/18 to .0008/20
*1505	.0015/38	.0005/13	.0025/64	.0005/13	.0005/13	.0090/229	
*1507	.0015/38	.0007/18	.0025/64	.0005/13	.0005/13	.0090/229	
*1508	.0015/38	.0008/20	.0025/64	.0010/25	.0006/15	.0090/229	
*1510	.0015/38	.0010/25	.0030/76	.0010/25	.0006/15	.0090/229	
*1513	.0015/38	.0013/33	.0030/76	.0010/25	.0006/15	.0100/254	
1515	.0015/38	.0015/38	.0030/76	.0010/25	.0006/15	.0100/254	
1518	.0015/38	.0018/46	.0030/76	.0010/25	.0006/15	.0100/254	
1520	.0015/38	.0020/51	.0030/76	.0010/25	.0006/15	.0100/254	
1525	.0015/38	.0025/64	.0030/76	.0010/25	.0006/15	.0110/279	
1530	.0015/38	.0030/76	.0030/76	.0010/25	.0006/15	.0110/279	
1535	.0015/38	.0035/89	.0030/76	.0010/25	.0006/15	.0120/305	
*1508A	.0015/38	.0008/20	.0025/64	.0010/25	.0000/0	.0090/229	
*1510A	.0015/38	.0010/25	.0030/76	.0010/25	.0000/0	.0090/229	
1515A	.0015/38	.0015/38	.0030/76	.0010/25	.0000/0	.0100/254	
0.0017 hole uses the same specifications as the 0.0015 hole except for the hole dimension							.0008/20 to .0010/25
0.0018 hole uses the same specifications as the 0.0020 hole except for the hole dimension							
*2005	.0020/51	.0005/13	.0040/102	.0010/25	.0006/15	.0120/305	.0010/25
*2007	.0020/51	.0007/18	.0040/102	.0010/25	.0006/15	.0120/305	
*2010	.0020/51	.0010/25	.0040/102	.0010/25	.0006/15	.0120/305	
*2012	.0020/51	.0012/30	.0040/102	.0010/25	.0006/15	.0120/305	
2015	.0020/51	.0015/38	.0040/102	.0010/25	.0006/15	.0120/305	
2020	.0020/51	.0020/51	.0040/102	.0010/25	.0006/15	.0120/305	
2025	.0020/51	.0025/64	.0040/102	.0010/25	.0006/15	.0120/305	
2030	.0020/51	.0030/76	.0040/102	.0010/25	.0006/15	.0120/305	
2515	.0025/64	.0015/38	.0040/102	.0010/25	.0006/15	.0110/279	
2520	.0025/64	.0020/51	.0040/102	.0010/25	.0006/15	.0120/305	
2525	.0025/64	.0025/64	.0040/102	.0010/25	.0006/15	.0120/305	.0010/25 to .0013/33
2530	.0025/64	.0030/76	.0040/102	.0015/38	.0006/15	.0120/305	
2520A	.0025/64	.0020/51	.0040/102	.0010/25	.0000/0	.0110/279	
2525A	.0025/64	.0025/64	.0040/102	.0010/25	.0000/0	.0120/305	
0.0027 hole uses the same specifications as the 0.0025 hole except for the hole dimension							.0013/33 to .0015/38
*3010	.0030/76	.0010/25	.0050/127	.0015/38	.0010/25	.0130/330	.0015/38 to .0018/46
3015	.0030/76	.0015/38	.0050/127	.0015/38	.0010/25	.0130/330	
3020	.0030/76	.0020/51	.0050/127	.0015/38	.0010/25	.0140/356	
3025	.0030/76	.0025/64	.0050/127	.0015/38	.0010/25	.0140/356	
3030	.0030/76	.0030/76	.0050/127	.0015/38	.0010/25	.0150/381	
3035	.0030/76	.0035/89	.0050/127	.0015/38	.0010/25	.0150/381	
3040	.0030/76	.0040/102	.0050/127	.0015/38	.0010/25	.0150/381	
3525	.0035/89	.0025/64	.0050/127	.0015/38	.0010/25	.0150/381	.0020/51
3530	.0035/89	.0030/76	.0050/127	.0015/38	.0010/25	.0150/381	
3535	.0035/89	.0035/89	.0050/127	.0015/38	.0010/25	.0160/406	
3540	.0035/89	.0040/102	.0050/127	.0015/38	.0010/25	.0160/406	
3550	.0035/89	.0050/127	.0050/127	.0015/38	.0010/25	.0170/432	
4030	.0040/102	.0030/76	.0060/152	.0015/38	.0010/25	.0170/432	.0020/51 to .0025/64
4040	.0040/102	.0040/102	.0060/152	.0015/38	.0010/25	.0180/457	
4540	.0045/114	.0040/102	.0070/178	.0020/51	.0010/25	.0200/508	.0030/76
4545	.0045/114	.0045/114	.0070/178	.0020/51	.0010/25	.0200/508	

\*Flat Face Only

Other part numbers are available. *Dimensions in inches unless otherwise specified*



**Specify:** Series/Wire Feed Angle - Hole Size/Bond Length - Length - Options

**Example:**

4160-2020-S

4760V-1510-3/4-F-BK CER

DASH NUMBER	H in./ $\mu$ m $\pm$ .0002/5	BL in./ $\mu$ m $\pm$ .0002/5	W in./ $\mu$ m $\pm$ .0002/5	FR in./ $\mu$ m $\pm$ .0002/5	BR in./ $\mu$ m $\pm$ .0002/5	T in./ $\mu$ m $\pm$ .0005/13	C in./ $\mu$ m (ref) (4760 only)	SUGGESTED WIRE DIAMETER in./ $\mu$ m
0.0013 hole uses the same specifications as the 0.0013 hole except for the hole dimension								.0005/13 to .0008/20
*1505	.0015/38	.0005/13	.0025/64	.0005/13	.0005/13	.0080/203	.002/51	
*1507	.0015/38	.0007/18	.0025/64	.0005/13	.0005/13	.0080/203	.002/51	
*1510	.0015/38	.0010/25	.0030/76	.0010/25	.0006/15	.0080/203	.002/51	
1515	.0015/38	.0015/38	.0030/76	.0010/25	.0006/15	.0080/203	.002/51	
1520	.0015/38	.0020/51	.0030/76	.0010/25	.0006/15	.0080/203	.002/51	
1525	.0015/38	.0025/64	.0030/76	.0010/25	.0006/15	.0090/229	.002/51	.0008/20 to .0010/25
0.0017 hole uses the same specifications as the 0.0015 hole except for the hole dimension								
0.0018 hole uses the same specifications as the 0.0020 hole except for the hole dimension								.0010/25 to .0015/38
*2005	.0020/51	.0005/13	.0040/102	.0010/25	.0006/15	.0080/203	.003/76	
*2010	.0020/51	.0010/25	.0040/102	.0010/25	.0006/15	.0090/229	.003/76	
2015	.0020/51	.0015/38	.0040/102	.0010/25	.0006/15	.0090/229	.003/76	
2020	.0020/51	.0020/51	.0040/102	.0010/25	.0006/15	.0100/254	.003/76	
2025	.0020/51	.0025/64	.0040/102	.0010/25	.0006/15	.0100/254	.003/76	
2030	.0020/51	.0030/76	.0040/102	.0010/25	.0006/15	.0110/279	.003/76	
2035	.0020/51	.0035/89	.0040/102	.0010/25	.0006/15	.0110/279	.003/76	
*2510	.0025/64	.0010/25	.0040/102	.0010/25	.0006/15	.0100/254	.003/76	
2515	.0025/64	.0015/38	.0040/102	.0010/25	.0006/15	.0100/254	.003/76	
2520	.0025/64	.0020/51	.0040/102	.0010/25	.0006/15	.0110/279	.003/76	
2525	.0025/64	.0025/64	.0040/102	.0010/25	.0006/15	.0110/279	.003/76	
2530	.0025/64	.0030/76	.0040/102	.0015/38	.0006/15	.0120/305	.003/76	.0015/38 to .0020/51
2535	.0025/64	.0035/89	.0040/102	.0015/38	.0006/15	.0130/330	.003/76	
2540	.0025/64	.0040/102	.0040/102	.0015/38	.0006/15	.0130/330	.003/76	
3020	.0030/76	.0020/51	.0050/127	.0015/38	.0010/25	.0130/330	.004/102	
3025	.0030/76	.0025/64	.0050/127	.0015/38	.0010/25	.0140/356	.004/102	
3030	.0030/76	.0030/76	.0050/127	.0015/38	.0010/25	.0140/356	.004/102	
3035	.0030/76	.0035/89	.0050/127	.0015/38	.0010/25	.0150/381	.004/102	
3040	.0030/76	.0040/102	.0050/127	.0015/38	.0010/25	.0150/381	.004/102	
3045	.0030/76	.0045/114	.0050/127	.0015/38	.0010/25	.0160/406	.004/102	
3050	.0030/76	.0050/127	.0050/127	.0015/38	.0010/25	.0160/406	.004/102	

\*Flat Face Only

Other part numbers are available.

*Dimensions in inches unless otherwise specified*