

Material Grade: 17-4PH, 630, UNS17400, AMS5622, AMS5643

Supply condition (s): Varies between standards.

ASTM A5464- to be specified in line with the mechanical property table designation

AMS5622/5643 – when no additional condition is specified, the supply condition is solution annealed. When AMS designation is followed by the applicable slash designation, such as AMS5643/H900, this indicates the supply condition.

Associated standards:¹ AMS5622 Rev H
AMS5643 Rev W
ASTM A564

Melting/refining method(s): Varies between standards:

AMS5622 **Type 1** - VAR
AMS5622 **Type 2** - ESR
AMS5643 – not specified
ASTM A564 - not specified

Typical tolerance(s): May vary between producers

1. TYPICAL CHEMICAL COMPOSITION

	%	<u>C</u>	<u>Mn</u>	<u>P</u>	<u>S</u>	<u>Si</u>	<u>Cr</u>	<u>Ni</u>	<u>Mo</u>	<u>Cu</u>	<u>Nb</u>
ASTM A564 GRADE 630	Min						15	3		3	0.15
	Max	0.07	1	0.04	0.03	1	17.5	5		5	0.45
AMS5643	Min						15	3		3	5XC
	Max	0.07	1	0.04	0.03	1	17.5	5	0.5	5	0.45
AMS5622	Min						15	3		3	5XC
	Max	0.07	1	0.025	0.015	1	17.5	5	0.5	5	0.45

Variance(s) between the specifications are highlighted in grey.

2. TYPICAL MECHANICAL PROPERTIES

Test type					Tensile and hardness test (at room temperature)					Impact test (KCV)
					0.2 % proof	UTS (Rm)	Elong (4D) (A)	R of A (Z) individual	Hardness	Room Temp
Condition	Solid bar nominal diameter <i>d</i>	Direction	Unit		N/mm ² (KSI)	N/mm ² (KSI)	%	%	HB (HRC)	J (ft-lbs)
ASTM A564 GRADE 630	Solution annealed (A)	-	-	Min	-	-	-	-	-	-
				Max	-	-	-	-	363 (38)	-
ASTM A564 GRADE 630	H900	≤ 3" (75mm)	L	Min	1170 (170)	1310 (190)	10	40	388 (40)	-
				Max	-	-	-	-	-	-
ASTM A564 GRADE 630	H900	> 3" (75mm)	T	Min	1170 (170)	1310 (190)	10	35	388 (40)	-
				Max	-	-	-	-	-	-
ASTM A564 GRADE 630	H925	≤ 3" (75mm)	L	Min	1070 (155)	1170 (170)	10	44	375 (38)	6.8 (5)
				Max	-	-	-	-	-	-
ASTM A564 GRADE 630	H925	> 3" (75mm) ≤ 8" (200mm)	T	Min	1070 (155)	1170 (170)	10	38	375 (38)	6.8 (5)
				Max	-	-	-	-	-	-
ASTM A564 GRADE 630	H1025	≤ 8" (200mm)	L	Min	1000 (145)	1070 (155)	12	45	331 (35)	20 (15)
				Max	-	-	-	-	-	-
ASTM A564 GRADE 630	H1075	-	-	Min	860 (125)	1000 (145)	13	45	311 (32)	27 (20)
				Max	-	-	-	-	-	-
ASTM A564 GRADE 630	H1100	-	-	Min	795 (115)	965 (140)	14	45	302 (31)	34 (25)
				Max	-	-	-	-	-	-
ASTM A564 GRADE 630	H1150	-	-	Min	725 (105)	930 (135)	16	50	277 (28)	41 (30)
				Max	-	-	-	-	-	-
ASTM A564 GRADE 630	H1150M	-	-	Min	520 (75)	795 (115)	18	55	255 (24)	75 (55)
				Max	-	-	-	-	-	-
ASTM A564 GRADE 630	H1150D	-	-	Min	725 (105)	860 (125)	16	50	255 (24)	41 (30)
				Max	-	-	-	-	311 (33)	-
AMS5643	Solution annealed (A)	≤ 8" (200mm)	-	Min	-	-	-	-	-	-
				Max	-	-	-	-	363 (39)	-
AMS5643	H900	≤ 3" (76mm)	-	Min	1172 (170)	1310 (190)	10	40	388 (40)	-
				Max	-	-	-	-	444 (47)	-
AMS5643	H900	> 3" (76mm) ≤ 8" (200mm)	-	Min	1172 (170)	1310 (190)	10	35	388 (40)	-
				Max	-	-	-	-	444 (47)	-
AMS5643	H925	≤ 3" (76mm)	-	Min	1069 (155)	1172 (170)	10	44	375 (38)	-
				Max	-	-	-	-	429 (45)	-
AMS5643	H925	> 3" (76mm) ≤ 8" (200mm)	-	Min	1069 (155)	1172 (170)	10	38	375 (38)	-
				Max	-	-	-	-	429 (45)	-
AMS5643	H1025	≤ 8" (200mm)	-	Min	1000 (145)	1069 (155)	12	45	331 (34)	-
				Max	-	-	-	-	401 (42)	-
AMS5643	H1075	≤ 8" (200mm)	-	Min	862 (125)	1000 (145)	13	45	311 (31)	-
				Max	-	-	-	-	375 (38)	-
AMS5643	H1100	≤ 8" (200mm)	-	Min	793 (115)	965 (140)	14	45	302 (30)	-
				Max	-	-	-	-	363 (37)	-
AMS5643	H1150	≤ 8" (200mm)	-	Min	724 (105)	931 (135)	16	50	277 (28)	-
				Max	-	-	-	-	352 (37)	-

Test type				Tensile and hardness test (at room temperature)					Impact test (KCV)
				0.2 % proof	UTS (Rm)	Elong (4D) (A)	R of A (Z) individual	Hardness	Room Temp
Condition	Solid bar nominal diameter d	Direction	Unit	N/mm ² (KSI)	N/mm ² (KSI)	%	%	HB (HRC)	J (ft-lbs)

AMS5622	Solution annealed (A)	$\leq 8^\circ$ (200mm)	-	Min	-	-	-	-	-
				Max	-	-	-	363 (39)	-
AMS5622	H900	$\leq 8^\circ$ (200mm)	L	Min	1172 (170)	1310 (190)	10	35	-
				Max	-	-	-	-	-
AMS5622	H900	$\leq 8^\circ$ (200mm)	T	Min	1172 (170)	1310 (190)	5	15	-
				Max	-	-	-	-	-
AMS5622	H925	$\leq 8^\circ$ (200mm)	L	Min	1069 (155)	1172 (170)	10	38	-
				Max	-	-	-	-	-
AMS5622	H925	$\leq 8^\circ$ (200mm)	T	Min	1069 (155)	1172 (170)	6	20	-
				Max	-	-	-	-	-
AMS5622	H1025	$\leq 8^\circ$ (200mm)	L	Min	1000 (145)	1069 (155)	12	45	-
				Max	-	-	-	-	-
AMS5622	H1025	$\leq 8^\circ$ (200mm)	T	Min	1000 (145)	1069 (155)	7	27	-
				Max	-	-	-	-	-
AMS5622	H1075	$\leq 8^\circ$ (200mm)	L	Min	862 (125)	1000 (145)	13	45	-
				Max	-	-	-	-	-
AMS5622	H1075	$\leq 8^\circ$ (200mm)	T	Min	862 (125)	1000 (145)	8	28	-
				Max	-	-	-	-	-
AMS5622	H1100	$\leq 8^\circ$ (200mm)	L	Min	793 (115)	965 (140)	14	45	-
				Max	-	-	-	-	-
AMS5622	H1100	$\leq 8^\circ$ (200mm)	T	Min	793 (115)	965 (140)	9	29	-
				Max	-	-	-	-	-
AMS5622	H1150	$\leq 8^\circ$ (200mm)	L	Min	724 (105)	931 (135)	16	50	-
				Max	-	-	-	-	-
AMS5622	H1150	$\leq 8^\circ$ (200mm)	T	Min	724 (105)	931 (135)	10	30	-
				Max	-	-	-	-	-

¹ valid at the time of writing.

Whilst great care and attention has been paid to compose this datasheet but we will not take the responsibility for any errors.