

 HILLFOOT METALS SUPPLY CHAIN INNOVATION	MATERIAL DATASHEET	
	15-5 PH, XM-12, UNS15500, AMS5659	Page 1 of 3

Material Grade: 15-5 PH, XM-12, UNS15500, AMS5659

Supply condition (s): Varies between standards.

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

AMS5659 – when no additional condition is specified, the supply condition is solution annealed. When AMS designation is followed by the applicable slash designation, such as AMS5659/H900, this indicates the supply condition.

Associated standards:¹ AMS5659 Rev T
ASTM A564

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

AMS5659 **Type 1** - VAR
AMS5659 **Type 2** – ESR
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 XM-12	Min						14	3.5		2.5	0.15
	Max	0.07	1	0.04	0.03	1	15.5	5.5		4.5	0.45
AMS5659	Min						14	3.5		2.5	5XC
	Max	0.07	1	0.015	0.03	1	15.5	5.5	0.5	4.5	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 XM-12	Solution annealed (A)	-	-	Min	-	-	-	-	-
				Max	-	-	-	363 (38)	-
ASTM A564 GRADE XM-12	H900	≤ 12" (300mm)	L	Min	1170 (170)	1310 (190)	10	35	388 (40)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H900	> 12" (300mm)	T	Min	1170 (170)	1310 (190)	6	15	388 (40)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H925	≤ 12" (300mm)	L	Min	1070 (155)	1170 (170)	10	38	375 (38)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H925	> 12" (300mm)	T	Min	1070 (155)	1170 (170)	7	20	375 (38)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H1025	≤ 12" (300mm)	L	Min	1000 (145)	1070 (155)	12	45	331 (35)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H1025	> 12" (300mm)	T	Min	1000 (145)	1070 (155)	8	27	331 (35)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H1075	≤ 12" (300mm)	L	Min	860 (125)	1000 (145)	13	45	311 (32)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H1075	> 12" (300mm)	T	Min	860 (125)	1000 (145)	9	28	311 (32)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H1100	≤ 12" (300mm)	L	Min	795 (115)	965 (140)	14	45	302 (31)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H1100	> 12" (300mm)	T	Min	795 (115)	965 (140)	10	29	302 (31)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H1150	≤ 12" (300mm)	L	Min	725 (105)	930 (135)	16	50	277 (28)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H1150	> 12" (300mm)	T	Min	725 (105)	930 (135)	11	30	277 (28)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H1150M	≤ 12" (300mm)	L	Min	515 (75)	795 (115)	18	55	255 (24)
				Max	-	-	-	-	-
ASTM A564 GRADE XM-12	H1150M	> 12" (300mm)	T	Min	515 (75)	795 (115)	14	35	255 (24)
				Max	-	-	-	-	-

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)

AMS5659	Solution annealed (A)	≤ 12" (305mm)	-	Min	-	-	-	-	-
				Max	-	-	-	363 (39)	-
AMS5659	H900	≤ 12" (305mm)	L	Min	1172 (170)	1310 (190)	10	35	-
				Max	-	-	-	-	-
AMS5659	H900	≤ 12" (305mm)	T	Min	1172 (170)	1310 (190)	6	20	-
				Max	-	-	-	-	-
AMS5659	H925	≤ 12" (305mm)	L	Min	1069 (155)	1172 (170)	10	38	-
				Max	-	-	-	-	-
AMS5659	H925	≤ 12" (305mm)	T	Min	1069 (155)	1172 (170)	7	25	-
				Max	-	-	-	-	-
AMS5659	H1025	≤ 12" (305mm)	L	Min	1000 (145)	1069 (155)	12	45	-
				Max	-	-	-	-	-
AMS5659	H1025	≤ 12" (305mm)	T	Min	1000 (145)	1069 (155)	8	32	-
				Max	-	-	-	-	-
AMS5659	H1075	≤ 12" (305mm)	L	Min	862 (125)	1000 (145)	13	45	-
				Max	-	-	-	-	-
AMS5659	H1075	≤ 12" (305mm)	T	Min	862 (125)	1000 (145)	9	33	-
				Max	-	-	-	-	-
AMS5659	H1100	≤ 12" (305mm)	L	Min	793 (115)	965 (140)	14	45	-
				Max	-	-	-	-	-
AMS5659	H1100	≤ 12" (305mm)	T	Min	793 (115)	965 (140)	10	34	-
				Max	-	-	-	-	-
AMS5659	H1150	≤ 12" (305mm)	L	Min	724 (105)	931 (135)	16	50	-
				Max	-	-	-	-	-
AMS5659	H1150	≤ 12" (305mm)	T	Min	724 (105)	931 (135)	11	35	-
				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.