



MATERIAL TEST REPORT

(DIN 50049 / EN 10204-3.1)

SECTION 3 OF 3

Certificate No.: 1018701

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CHEMICAL ANALYSIS

Component	Material	Heat-No.	C (%)	Mn (%)	Si (%)	Cr (%)	Ni (%)	Mo (%)	P (%)	S (%)	Cu (%)	V (%)	Nb (%)	Residual Elements
	A105N	Requirements	≤0.35	0.6-1.05	0.1-0.35	≤0.3	≤0.4	≤0.12	≤0.035	≤0.04			/	/
BODY	A105N	C38	0.210	0.860	0.210	0.058	0.063	0.048	0.018	0.021			/	/
BONNET	A105N	C38	0.210	0.860	0.210	0.058	0.063	0.048	0.018	0.021			/	/
Component	Material	Heat-No.	C (%)	Mn (%)	Si (%)	Cr (%)	Ni (%)	Mo (%)	P (%)	S (%)	Cu (%)	V (%)	Nb (%)	Residual Elements
	F316	Requirements	≤0.08	≤2	≤1	16.0-18.0	10.0-14.0	2.0-3.0	≤0.045	≤0.03	/	/	/	/
BALL	F316	R043	0.062	1.240	0.590	16.19	10.220	2.210	0.023	0.019	/	/	/	/
Component	Material	Heat-No.	C (%)	Mn (%)	Si (%)	Cr (%)	Ni (%)	Mo (%)	P (%)	S (%)	Cu (%)	V (%)	Nb (%)	Residual Elements
	17-4PH	Requirements	≤0.07	≤1.0	≤1.0	15-17.5	3.0-5.0		≤0.04	≤0.030		/	/	/
STEM	17-4PH	174P26	0.059	0.850	0.560	15.68	3.220		0.024	0.023		/	/	/
Component	Material	Heat-No.	C (%)	Mn (%)	Si (%)	Cr (%)	Ni (%)	Mo (%)	P (%)	S (%)	Cu (%)	V (%)	Nb (%)	Residual Elements
BOLT	B7M	Requirements	0.37-0.49	0.65-1.1	0.15-0.35	0.75-1.2		0.15-0.25	≤0.035	≤0.04	/	/	/	/
NUT	2HM	Requirements	>0.4	≤1	≤0.4				≤0.04	≤0.05	/	/	/	/
BOLT	B7M	Z8207	0.420	0.780	0.210	0.820		0.190	0.023	0.019	/	/	/	/
NUT	2HM	M8208	0.440	0.790	0.230				0.024	0.022	/	/	/	/



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MECHANICAL PROPERTIES

Component	Material	Heat-No.	Yield strength ksi (MPA)	Tensile strength ksi (MPA)	Elongation (%)	Reduction of area (%)	Impact Value (J) @ -46 deg C	Hardness BHN
	A105N	Requirements	≥250	≥485	≥22	≥30	/	≤187
BODY	A105N	C38	286	522	30	46	/	158
BONNET	A105N	C38	286	522	30	46	/	158
Component	Material	Heat-No.	Yield strength ksi (MPA)	Tensile strength ksi (MPA)	Elongation (%)	Reduction of area (%)	Impact Value (J) @ -46 deg C	Hardness BHN
	F316	Requirements	≥205	≥515	≥30	≥50	/	≤187
BALL	F316	R043	239	549	38	59	/	
Component	Material	Heat-No.	Yield strength ksi (MPA)	Tensile strength ksi (MPA)	Elongation (%)	Reduction of area (%)	Impact Value (J) @ -46 deg C	Hardness BHN
	17-4PH	Requirements	≥1170	≥1310	≥10	≥40	/	≤388
STEM	17-4PH	174P26	1193	1355	24	52	/	300
Component	Material	Heat-No.	Yield strength ksi (MPA)	Tensile strength ksi (MPA)	Elongation (%)	Reduction of area (%)	Impact Value (J) @ -46 deg C	Hardness BHN
BOLT	A193 B7M	Requirements	≥550	≥690	≥18	≥50	/	≤235
NUT	A194 2HM	Requirements	/	/	/	/	/	159-239
BOLT	A193 B7M	Z8207	584	726	23	59	/	211
NUT	A194 2HM	M8208	/	/	/	/	/	205

HEAT TREATMENT STATUS (IF APPLICABLE)

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