

BASIC MATERIALS

PMPA DESIGNATION	CT-0010-R	CT-0010-S	CZP-0218-T	CZP-0218-U		F-0000-N	F-0000-P	F-0000-S
MATERIAL	Bronze	Bronze	Brass	Brass	Iron Bronze	Iron	Iron	Hi-Density Iron
Suggested Uses	Bearings	Structural Parts Bearings	Structural Parts Bearings	Structural Parts	Bearings	Structural Parts Bearings	Structural Parts Bearings	Structural Parts
COMPOSITION - PERCENT								
Copper	86.3-90.5	86.3-90.5	77.0-80.0	77.0-80.0	31.5			
Iron	1.0 Max.	1.0 Max.	0.3 Max.	0.3 Max.	Bal.	97.7-100.0	97.7-100.0	97.7-100.0
Tin	9.5-10.5	9.5-10.5	0.1 Max.	0.1 Max.	3.5			
Lead			1.0-2.0	1.0-2.0				
Carbon	1.70 Max.	1.70 Max.				0.3 Max.	0.3 Max.	0.3 Max.
Zinc		Bal.	Bal.					
Nickel								
Molybdenum								
Sulphur								
Other Elements	0.5	0.5				2	2	2
PHYSICAL & MECHANICAL PROPERTIES								
Density gms per cm3	6.4-6.8	6.8-7.2	7.2-7.6	7.6-8.0	5.8-6.2	5.6-6.0	6.0-6.4	6.8-7.2
Porosity % by Volume	18 Min.	7 Min.	7 Min.		20 Min.	18 Min.	15 Min.	
Tensile Strength PSI								
As Sintered	14,000	18,000	24,000	28,000	14,000	16,000	20,000	30,000
Heat Treated								
Modulus of Rupture PSI	26,500	30,500			25,000	25,000		
Elong. (in 1") Typ.	1	2-3	13	19	3-5	2	3	6
Yld. Strength in Comp.	11,000	17,500	12,000	14,000		12,000		25,000
App. Rockwell Hardness			H55	H68				
As Sintered					F-52	F-30	F-45	F-60
Heat Treated								
Comparable Specifications								
ASTM	B-438-67	B-255	B-282	B-282		B-439 Gr. 1	B-310	B-310
	Grade 1					B-310		
	Type II	Type II				Type 1	Type 2	Type 4
			Class A	Class B		Class A	Class A	Class A
SAE	841	842	890	891		850	853	
MILITARY	Mil-B-5687-D		Mil-12128-C	Mil-12128-C		Mil-B-5687-D		
	Type I		Comp. 3			Type II		
	Grade 1		Med. Dens.	Hi-Dens.		Grade I		

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PMPA DESIGNATION	F-0008-P	FC-0808P	FC-1000-N	FC-2000-N	FC-2010-N	FX-2000-T	FX-2008-T	FN-0208-R
MATERIAL	Steel	Copper Steel	Iron Alloy	Iron Alloy	Copper Steel	Iron Cu. Infil.	Infiltrated Steel	Nickel Steel
Suggested Uses	Structural Parts	Structural Parts	Bearings	Bearings	Bearings	Structural Parts	Structural Parts	Structural Parts
COMPOSITION - PERCENT								
Copper		6.0-11.0	9.5-10.5	18-22	18-22	15-25	15-25	0-2.5
Iron	97.0-99.4	86.0-93.4	88 Min.	76-81	75-80	70.7-85	70-84.4	91.6-98.4
Tin								
Lead								
Carbon	0.6-1.0	0.6-1.0	0.3 Max.	0.3 Max.	0.6-1.0	0.3 Max.	0.6-1.0	0.6-0.9
Zinc								
Nickel								1.0-3.0
Molybdenum								0.35-0.65
Sulphur								
Other Elements	2	2	2	2	2	4	4	2
PHYSICAL & MECHANICAL PROPERTIES								
Density gms per cm3	6.0-6.4	6.0-6.4	5.8-6.2	5.8-6.2	5.6-6.0	7.2-7.6	7.2-7.6	6.4-6.8
Porosity % by Volume	7 Min.	15 Min.	18 Min.	20 Min.	20 Min.			
Tensile Strength PSI								
As Sintered	34,000	70,000	28,000	22,000	40,000	65,000	85,000	65,000
Heat Treated	50,000	88,000			50,000			90,000
Modulus of Rupture PSI			40,000	40,000	64,000			
Elong. (in 1") Typ.	0-0.5	0-0.5	0-0.5	2-3	0-0.5	1	1	0.5
Yld. Strength in Comp.	26,000		25,000			70,000	90,000	
App. Rockwell Hardness								
As Sintered	B-50	B-60	F-53	F-35	B-40	B-60	B-80	B-62
Heat Treated	C-20	C-20			B-70			C-20
Comparable Specifications								
ASTM	B-310		B-222	B-439		B-303	B-303	B-484
			B-439					Grade 1
	Type II		Grade 3	Grade 4				Class C
	Class C					Class A	Class C	Type 1
SAE	855		862	863		870	872	
MILITARY			Mil-5687-D	Mil-B-5687-D				
			Type II	Type II				
			Grade 3	Grade 4				