



MPIF 35 (Sintered Iron and Sintered-Carbon Steel)

Grades	Chemical Composition(%)			The minimum strength MPa (A) (E)		Tensile Property			Elastic Constant		AKVJ	cross- breaking strength MPa	compressive yield strength (0.1%) MPa	hardness (Rockwell)		fatigue limit (99% survival rate) MPa	density (g/cm3)	
	Fe	C	The Other	Yielding	Limitation	Limit Strength MPa	Yield Strength (0.2%)MPa	Elongation (25.4mm) %	Young modulus Gpa	Poisson's ratio				macro- hardness	micro- hardness			
F-0000-10	97.7-100.0	0.0-0.3		70		120	90	1.5	105	0.25	4	250	110	40HRF	N/A	46	6.1	normally available for parts with light load, also for self- lubricating parts.
F-0000-15				100		170	120	2.5	120	0.25	8	340	120	60.0		65	6.7	
F-0000-20				140		260	170	7.0	160	0.28	47	660	130	80.0		99	7.3	
F-0005-15	97.04-99.7	0.3-0.6		100		170	120	<1.0	105	0.25	4	330	125	25HRB	N/A	60	6.1	available for the parts with moderate load,moderate strength, hardness and machinability, also need to be heated.
F-0005-20				140		220	160	1.0	115	0.25	5	440	160	40.0		80	6.6	
F-0005-25				170		260	190	1.5	135	0.27	7	520	190	55.0		100	6.9	
F-0005-50HT	97.04-99.7	0.3-0.6			340	410	(D)	<0.5	115	0.25	4	720	300	20HRC	58HRC	160	6.6	
F-0005-60HT					410	480		<0.5	130	0.27	5	830	360	22.0		190	6.8	
F-0005-70HT					480	550		<0.5	140	0.27	5	970	420	25.0		220	7	
F-0008-20	97.1-99.4	0.6-0.9		140		200	170	<0.5	85	0.25	3	350	190	35HRB	N/A	80	5.8	available for the parts with moderate load,moderate strength, hardness and abrasive resistance. The machinability of F-0008 is better than F-0005'. Both of them can be heated.
F-0008-25				170		240	210	<0.5	110	0.25	4	420	210	50.0		100	6.2	
F-0008-30				210		290	240	<1.0	115	0.25	5	510	210	60.0		120	6.6	
F-0008-35				240		390	260	1.0	140	0.27	7	690	250	70.0		170	7	
F-0008-55HT	97.1-99.4	0.6-0.9			380	450	(D)	<0.5	115	0.25	4	690	480	22HRC	60HRC	180	6.3	
F-0008-65HT					450	520		<0.5	115	0.25	5	790	550	28.0		210	6.6	
F-0008-75HT					520	590		<0.5	135	0.27	6	900	620	32.0		240	6.9	
F-0008-85HT					590	660		<0.5	150	0.27	7	1000	690	35.0		280	7.1	

Note:Organized according to MPIF 35



MPIF 35 (Sintered Fe-Cu Alloy and Sintered Copper Steel)

Grades	Chemical Composition(%)			The Minimum Strength MPa (A) (E)		Tensile Property			Elastic Constant		AKVJ	cross- breaking strength MPa	compressive yield strength(0.1 %) MPa	hardness (Rockwell)		fatigue limit (99% survival rate) MPa	Density (g/cm ³)
	Fe	Cu	C	Yielding	Limitation	Limit Strength	Yield Strength	Elongation (25.4mm)	Young modulus	Poisson's ratio				macro- hardness	micro- hardness		
FC-0200-15	93.8-98.5	1.5-3.9	0.0-0.3	100		170	140	1.0	95	0.25	6	310	120	11HRB	N/A	70	6.0
FC-0200-18				120		190	160	1.5	115	0.25	7	350	140	18		72	6.3
FC-0200-21				140		210	180	1.5	115	0.25	7	390	160	26		80	6.6
FC-0200-24				170		230	200	2.0	135	0.27	8	430	180	36		87	6.9
FC-0205-30	93.5-98.2	1.5-3.9	0.3-0.6	210		240	240	<1.0	95	0.25	<3	410	240	37HRB	N/A	90	6.0
FC-0205-35				240		280	280	<1.0	115	0.25	4	520	280	48		100	6.3
FC-0205-40				280		340	310	<1.0	120	0.25	7	660	310	60		140	6.7
FC-0205-45				310		410	340	<1.0	150	0.27	10	790	340	72		210	7.1
FC-0205-60HT					410	480	(D)	<0.5	110	0.25	3	660	390	19HRC	58HRC	190	6.2
FC-0205-70HT					480	550		<0.5	105	0.25	5	760	490	25	58	210	6.5
FC-0205-80HT					550	620		<0.5	130	0.27	6	830	590	31	58	230	6.8
FC-0205-90HT					620	690		<0.5	140	0.27	7	930	660	36	58	260	7.0
FC-0208-30	93.2-97.9	1.5-3.9	0.6-0.9	210		240	240	<1.0	85	0.25	<3	410	280	50HRB	N/A	90	5.8
FC-0208-40				280		340	310	<1.0	115	0.25	3	620	310	61		120	6.3
FC-0208-50				340		410	380	<1.0	120	0.25	7	860	340	73		160	6.7
FC-0208-60				410		520	450	<1.0	155	0.28	9	1070	380	84		230	7.2
FC-0208-50HT					340	450	(D)	<0.5	105	0.25	3	660	400	20HRC	60HRC	170	6.1
FC-0208-65HT					450	520		<0.5	120	0.27	5	760	500	27	60	210	6.4
FC-0208-80HT					550	620		<0.5	130	0.27	6	900	630	35	60	240	6.8
FC-0208-95HT					660	660		<0.5	150	0.27	7	1030	720	43	60	280	7.1
FC-0505-30	91.4-95.7	4.0-6.0	0.3-0.6	210		300	250	<0.5	85	0.25	4	530	340	51HRB	N/A	114	5.8
FC-0505-40				280		400	320	<0.5	115	0.25	6	700	370	62		152	6.3
FC-0505-50				340		490	390	<1.0	120	0.25	7	850	400	72		186	6.7
FC-0508-40	91.1-95.4	4.0-6.0	0.6-0.9	280		400	340	<0.5	90	0.25	4	690	400	60HRB	N/A	152	5.9
FC-0508-50				340		470	410	<0.5	115	0.25	5	830	430	68		179	6.3
FC-0508-60				410		570	480	<1.0	130	0.27	6	1000	470	80		217	6.8
FC-0808-45	88.1-92.4	7.0-9.0	0.6-0.9	310		380	340	<0.5	95	0.27	4	590	430	65HRB	N/A	144	6.0
FC-1000-20	87.2-90.5	9.5-10.5	0.0-0.3	140		210	180	<1.0	95	0.27	5	370	230	15HRB	N/A	80	6.0

Note: Organized according to MPIF 35



MPIF 35 (Sintered Copperized Iron and Copperized Steel)

Grades	Chemical Composition(%)			The Minimum Strength MPa (A) (E)		Tensile Property			Elastic Constant		AKVJ	Cross- breaking Strength MPa	Compressive Yield Strength(0.1%) MPa	Hardness (Rockwell)		Fatigue Limit (99% survival rate) MPa	Density (g/cm3)
	Fe	Cu	C	Yielding	Limitation	Limit Strength MPa	Yield Strength (0.2%)MP a	Elongation (25.4mm) %	Young modulus Gpa	Poisson's ratio				Macro- hardness	Micro- hardness		
FX-1000-25	82.8-92.0	8.0-14.9	0.0-0.3	170	/	350	220	7.0	160	0.28	34	910	230	65HRB	N/A	133	7.30
FX-1005-40	82.5-91.7	8.0-14.9	0.3-0.6	280	/	530	340	4.0	160	0.28	18	1090	370	82HRB	N/A	200	7.30
FX-1005-110HT				/	760	830	(D)	<0.5	160	0.28	9	1450	760	38HRC	55HRC	230	7.30
FX-1008-50	82.2-91.4	8.0-14.9	0.6-0.9	340	/	600	410	3.0	160	0.28	14	1140	490	89HRB	N/A	230	7.30
FX-1008-110HT				/	760	830	(D)	<0.5	160	0.28	9.0	1300	790	43HRC	58HRC	280	7.30
FX-2000-25	72.7-85.0	15.0-25.0	0.0-0.3	170	/	320	260	3.0	145	0.24	20	990	280	66HRB	N/A	122	7.30
FX-2005-45	72.4-84.7	15.0-25.0	0.3-0.6	310	/	520	410	1.5	145	0.24	11	1020	410	85HRB	N/A	140	7.30
FX-2005-90HT				/	620	690	(D)	<0.5	145	0.24	9	1180	490	36HRC	55HRC	160	7.30
FX-2008-60	72.1-84.4	15.0-25.0	0.6-0.9	410	/	550	480	1.0	145	0.24	9	1080	480	90HRB	N/A	160	7.30
FX-2008-90HT				/	620	690	(D)	<0.5	145	0.24	7	1100	510	36HRC	58HRC	190	7.30



MPIF 35 (Sintered Fe-Ni Alloy and Nickel Steel)

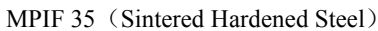
Grades	Chemical Composition(%)				The Minimum Strength MPa (A) (E)		Tensile Property			Elastic Constant		AKVJ	Cross- breaking Strength MPa	Compressive Yield Strength (0.1%) MPa	hardness (Rockwell)		Fatigue Limit (99% survival rate) MPa	Density (g/cm ³)
	Fe	Ni	C	Cu	Yielding	Limitation	Limit Strength MPa	Yield Strength(0. 2%)MPa	Elongatio n (25.4mm) %	Young Modulus Gpa	Poisson's ratio				Macro- hardness	Micro- hardness		
FN-0200-15	92.2-99.0	1.0-3.0	0.0-0.3	0.0-2.5	100	/	170	120	3.0	115	0.25	14	340	110	55HRF	N/A	70	6.6
FN-0200-20					140		240	170	5.0	140	0.27	27	550	120	75		91	7.0
FN-0200-25					170		280	210	10.0	160	0.28	68	720	140	80		103	7.3
FN-0205-20	91.9-98.7	1.0-3.0	0.3-0.6	0.0-2.5	140	/	280	170	1.5	115	0.25	8.0	450	170	44HRB	N/A	100	6.6
FN-0205-25					170		340	210	2.5	135	0.27	16	690	210	59		120	6.9
FN-0205-30					210		410	240	4.0	155	0.28	28	860	240	69		150	7.2
FN-0205-35					240		480	280	5.5	170	0.28	46	1030	280	78		180	7.4
FN-0205-80HT	91.6-98.4	1.0-3.0	0.3-0.6	0.0-2.5	/	550	620	(D)	<0.5	115	0.25	5	830	410	23HRC	55HRC	180	6.6
FN-0205-105HT						720	830		<0.5	135	0.27	6	1110	550	29	55	240	6.9
FN-0205-130HT						900	1000		<0.5	150	0.27	8	1310	690	33	55	290	7.1
FN-0205-155HT						1070	1100		<0.5	155	0.28	9	1480	830	36	55	320	7.2
FN-0205-180HT						1240	1280		<0.5	170	0.28	13.0	1720	970	40	55	370	7.4
FN-0208-30	91.6-98.4	1.0-3.0	0.6-0.9	0.0-2.5	210	/	310	240	1.5	120	0.25	7	590	240	63HRB	N/A	110	6.7
FN-0208-35					240		380	280	1.5	135	0.27	11	720	280	71		140	6.9
FN-0208-40					280		480	310	2.0	150	0.27	15	900	310	77		170	7.1
FN-0208-45					310		550	340	2.5	160	0.28	22	1070	340	83		190	7.3
FN-0208-50					340		620	380	3.0	170	0.28	28	1170	380	88		220	7.4
FN-0208-80HT					/	550	620	(D)	<0.5	120	0.25	5	830	680	26HRC	57HRC	200	6.7
FN-0208-105HT						720	830		<0.5	135	0.27	6	1030	850	31	57	260	6.9
FN-0208-130HT						900	1000		<0.5	140	0.27	7	1280	940	35	57	320	7.0
FN-0208-155HT						1070	1170		<0.5	155	0.28	9	1520	1120	39	57	370	7.2
FN-0208-180HT						1240	1340		<0.5	170	0.28	11	1720	1300	42	57	430	7.4
FN-0405-25	89.9-96.7	3.0-5.5	0.3-0.6	0.0-2.0	170	/	280	210	<1.0	105	0.25	6	450	230	49HRB	N/A	100	6.5
FN-0405-35					240		410	280	3.0	140	0.27	20	830	280	71		150	7.0
FN-0405-45					310		620	340	4.5	170	0.28	45	1210	310	84		220	7.4
FN-0405-80HT					/	550	590	(D)	<0.5	105	0.25	5	790	460	19HRC	55HRC	180	6.5
FN-0405-105HT						720	760		<0.5	130	0.27	7	1000	610	25	55	230	6.8
FN-0405-130HT						900	930		<0.5	140	0.27	9	1380	710	31	55	290	7.0
FN-0405-155HT						1070	1100		<0.5	160	0.28	13	1690	850	37	55	340	7.3
FN-0405-180HT						1240	1280		<0.5	170	0.28	18	1930	910	40	55	390	7.4
FN-0408-34	89.6-96.4	3.0-5.5	0.6-0.9	0.0-2.0	240	/	310	280	1.0	105	0.25	5	520	260	67HRB	N/A	110	6.5
FN-0408-45					310		450	340	1.0	135	0.27	10	790	340	78		160	6.9
FN-0408-55					380		550	410	1.0	155	0.28	15	1030	410	87		190	7.2



MPIF 35（Sintered Low Alloy Steel）

Grades	Chemical Composition(%)					The Minimum Strength MPa (A) (E)		Tensile Property			Elastic Constant		AKVJ	Cross-breaking Strength MPa	Compressive Yield Strength (0.1%) MPa	Hardness (Rockwell)		Fatigue Limit (99% survival rate) MPa	Density (g/cm3)
	Fe	C	Ni	Mo	Cu	Yielding	Limitation	Limit Strength MPa	Yield Strength (0.2%)MPa	Elongation (25.4mm) %	Young modulusGpa	Poisson's ratio				Macro-hardness	Micro-hardness		
FL-4205-35	95.90-98.75	0.4-0.7	0.35-0.55	0.50-0.85	/	240	/	360	290	1.0	130	0.27	8	690	290	60HRB	N/A	140	6.80
FL-4205-40						280		400	320	1.0	140	0.27	12	790	320	66		190	6.95
FL-4205-45						310		460	360	1.5	150	0.27	16	860	360	70		220	7.10
FL-4205-50						340		500	400	2.0	160	0.28	23	1030	390	75		280	7.30
FL-4205-80HT						/	550	620	(D)	<0.5	115	0.25	7.0	930	550	28HRC	60HRC	210	6.60
FL-4205-100HT							690	760		<0.5	130	0.27	9	1100	760	32	60	260	6.80
FL-4205-120HT							830	900		<0.5	140	0.27	11	1280	970	36	60	300	7.00
FL-4205-140HT							970	1030		<0.5	155	0.28	16	1480	1170	39	60	340	7.20
FL-4405-35	96.35-98.85	0.4-0.7	/	0.75-0.95	/	240	/	360	290	1.0	120	0.25	8	690	270	60HRB	N/A	140	6.70
FL-4405-40						280		400	320	1.0	135	0.27	15	860	310	67		190	6.90
FL-4405-45						310		460	360	1.5	150	0.27	22	970	360	73		220	7.10
FL-4405-50						340		500	400	2.0	160	0.28	30	1140	390	80		280	7.30
FL-4405-100HT						/	690	760	(D)	<1.0	120	0.25	7.0	1100	930	24HRC	60HRC	230	6.70
FL-4405-125HT							860	930		<1.0	135	0.27	9	1380	1070	29	60	290	6.90
FL-4405-150HT							1030	1100		<1.0	150	0.27	12	1590	1210	34	60	330	7.10
FL-4405-175HT							1210	1280		<1.0	160	0.28	19	1930	1340	38	60	400	7.30
FL-4605-35	94.20-97.50	0.4-0.7	1.70-2.00	0.4-1.10	/	240	/	360	290	1.0	125	0.27	8	690	290	60HRB	N/A	140	6.75
FL-4605-40						280		400	320	1.0	140	0.27	15	830	310	65		190	6.95
FL-4605-45						310		460	360	1.5	150	0.28	22	970	360	71		220	7.15
FL-4605-50						340		500	400	2.0	165	0.28	30	1140	390	77		280	7.35
FL-4605-80HT						/	550	590	(D)	<0.5	110	0.25	6	900	630	24HRC	60HRC	200	6.55
FL-4605-100HT							690	760		<0.5	125	0.27	8	1140	790	29	60	260	6.75
FL-4605-120HT							830	900		<0.5	140	0.27	11	1340	960	34	60	320	6.95
FL-4605-140HT							970	1070		<0.5	155	0.28	16	1590	1170	39	60	370	7.20
FLN-4205-40	93.95-97.76	0.4-0.7	1.35-2.50	0.49-0.85	/	280	/	400	320	1.0	115	0.25	8	720	310	64HRB	N/A	140	6.60
FLN-4205-45						310		460	360	1.0	130	0.27	11	860	340	70		190	6.80
FLN-4205-50						340		500	400	1.5	145	0.27	18	1030	390	77		220	7.05
FLN-4205-55						380		600	430	2.0	160	0.28	30	1210	410	83		280	7.30
FLN-4205-80HT						/	550	620	(D)	<1.0	115	0.25	7	900	860	24HRC	60HRC	190	6.60
FLN-4205-105HT							720	790		<1.0	130	0.27	9	1170	1000	30	60	250	6.80
FLN-4205-140HT							970	1030		<1.0	145	0.27	12	1590	1170	36	60	320	7.05
FLN-4205-170HT							1210	1280		1.0	160	0.28	19	2000	1380	42	60	400	7.30

Note:Organized according to MPIF 35

[illegible]



MPIF 35 (Diffused-alloy Steel)

Grades	Chemical Composition(%)					The Minimum Strength MPa (A) (E)		Tensile Property			Elastic Constant		AKVJ	Cross- breaking Strength MPa	Compressive Yield Strength(0.1) MPa	Hardness (Rockwell)		Fatigue Limit (99% survival rate) MPa	Density (g/cm3)
	Fe	C	Ni	Cu	Mo	Yielding	Limitation	Limit Strength MPa	Yield Strength (0.2%)MPa	Elongation (25.4mm) %	Young modulus Gpa	Poisson's ratio				Macro- hardness	Micro- hardness		
FD-0200	93.45-96.75	0.0-0.3	1.55-1.95	1.3-1.7	0.4-0.6														
FD-0205-45	93.15-96.45	0.3-0.6	1.55-1.95	1.3-1.7	0.4-0.6	310	/	470	360	1	125	0.27	11	900	320	72HRB	N/A	170	6.75
FD-0205-50						340		540	390	1.5	140	0.27	16	1070	360	76		200	6.95
FD-0205-55						380		610	420	2	150	0.28	24	1240	390	80		220	7.15
FD-0205-60						410		690	460	2	170	0.28	38	1450	430	86		260	7.40
FD-0205-95HT						/	660	720	(D)	<1.0	125	0.27	7	1100	900	28HRC	55HRC	290	6.75
FD-0205-120HT							830	900		<1.0	140	0.27	9	1310	1070	33	55	360	6.95
FD-0205-140HT							970	1030		<1.0	150	0.28	12	1450	1210	38	55	450	7.15
FD-0205-160HT							1100	1170		<1.0	170	0.28	15	1650	1380	45	55	520	7.40
FD-0208-50	92.85-96.15	0.6-0.9	1.55-1.95	1.3-1.7	0.4-0.6	340	/	480	400	<1.0	125	0.27	9	930	400	80HRB	N/A	170	6.75
FD-0208-55						380		540	430	<1.0	135	0.27	12	1070	430	83		230	6.90
FD-0208-60						410		630	470	1	150	0.27	16	1240	460	87		260	7.10
FD-0208-65						450		710	500	1	160	0.28	23	1340	500	90		320	7.25
FD-0405-55	90.70-94.40	0.3-0.6	3.60-4.40	1.3-1.7	0.4-0.6	380	/	590	430	1	125	0.27	15	1100	390	80HRB	N/A	170	6.75
FD-0405-60						410		710	460	1	145	0.27	27	1340	430	85		200	7.05
FD-0405-65						450		850	480	2.5	165	0.28	37	1590	500	91		280	7.35
FD-0405-100HT						/	690	760	(D)	<1.0	125	0.27	7	1100	860	30HRC	55HRC	230	6.75
FD-0405-130HT							900	970		<1.0	145	0.27	9	1380	1030	35	55	340	7.05
FD-0405-155HT							1070	1140		<1.0	165	0.28	14	1620	1210	42	55	400	7.35
FD-0408-50	90.40-94.10	0.6-0.9	3.60-4.40	1.3-1.7	0.4-0.6	340	/	490	390	<1.0	120	0.25	12	900	430	85HRB	N/A	150	6.70
FD-0408-55						380		620	430	1	140	0.27	18	1140	470	89		190	6.95
FD-0408-60						410		760	460	1.5	155	0.28	24	1380	500	93		260	7.20
FD-0408-65						450		860	490	2	170	0.28	30	1590	550	95		330	7.40