

Werkstoffübersicht / materials

Zusammensetzungen / compositions

Werkstoff materials	DIN	Wkst-Nr.	AISI	ISO	Zusammensetzung composition												
					C	Cr	Ni	Si	Mn	Mo	Cu	Co	V	W	Fe	Sonstige others	
Niedrig legierte Stähle / low alloyed steels																	
Parmaco 2NiFe					≤ 0.10		1.50 – 2.50			≤ 0.50						bal.	
Parmaco 7NiFe					≤ 0.10		6.00 – 8.00			≤ 0.50						bal.	
Parmaco 4140	42CrMo4	1.7225	4140		0.30 – 0.50	0.90 – 1.20		≤ 1.00	≤ 1.00	0.15 – 0.30						bal.	
Parmaco 4340	40NiCrMo6	1.6565	4340		0.30 – 0.50	0.70 – 0.90	1.40 – 2.00	≤ 1.00	≤ 1.00	0.20 – 0.30						bal.	
Parmaco 100Cr6	100Cr6	1.3505	52100		0.80 – 1.05	1.30 – 1.60		≤ 1.00	≤ 1.00							bal.	
Schnellarbeitsstähle / high speed steels																	
Parmaco M2	S 6-5-2	1.3343	M2		0.8 – 1.05	3.75 – 4.50		0.20 – 0.45	≤ 0.45	4.50 – 5.50			1.75 – 2.20	5.50 – 6.75	bal.		
Ferritische, rostfreie Stähle / ferritic stainless steels																	
Parmaco 17/4PH	X5CrNiCuNb17-4	1.4542	17-4PH		≤ 0.07	15.0 – 17.5	3.00 – 5.00	≤ 1.00	≤ 1.00		3.00 – 5.00				bal.	Nb+Ta: 0.15 – 0.45	
Ferritisch-Martensitische, rostfreie Stähle / ferritic-martensitic stainless steels																	
Parmaco 410	X15Cr13	~1.4024	410		0.10 – 0.20	11.5 – 13.5		≤ 1.00	≤ 1.00						bal.		
Parmaco 430F	X12CrMo17	~1.4104	430F		0.10 – 0.15	16.0 – 18.0		≤ 1.00	≤ 1.00						bal.		
Martensitische, rostfreie Stähle / martensitic stainless steels																	
Parmaco 420	X39Cr13	~1.4031	420		0.15 – 0.50	12.0 – 14.0		≤ 1.00	≤ 1.00						bal.		
Parmaco 440C	X105CrMo17	1.4125	440C		0.95 – 1.20	16.0 – 18.0		≤ 1.00	≤ 1.00	≤ 0.75					bal.		
Austenitische, rostfreie Stähle / austenitic stainless steels																	
Parmaco 316L	X2CrNiMo17-13-2	1.4404	316L		≤ 0.03	16.0 – 18.0	10.0 – 15.0	≤ 1.00	≤ 1.00	2.00 – 3.00					bal.		
Hitzbeständige, austenitische, rostfreie Stähle / heat resistant austenitic stainless steels																	
Parmaco HK30	X15CrNiSi2520	~1.4841	HK30		0.20 – 0.50	24.0 – 27.0	19.0 – 22.0	0.75 – 1.30	≤ 1.50	0.20 – 0.30					bal.	Nb: 1.00 – 1.75	
Ausdehnungskontrollierte Werkstoffe / low expansion alloys																	
Parmaco 36NiFe	FeNi36	1.3912			≤ 0.10		35.0 – 37.0			≤ 0.50					bal.		
Parmaco Kovar	NiCo 29-18	1.3981			≤ 0.10		28.5 – 29.5					16.5 – 17.5			bal.		
Weichmagnetische Werkstoffe / soft magnetic alloys																	
Parmaco 3SiFe	FeSi3	1.0844			≤ 0.10			2.50 – 3.00		≤ 0.50					bal.		
Parmaco 50NiFe	FeNi50	~1.3921			≤ 0.10		49.0 – 50.0			≤ 0.50					bal.		
Parmaco 80NiFe	FeNi80				≤ 0.10		78.0 – 82.0			≤ 0.50					bal.		
Parmaco Fe49Co2V	Fe49Co2V				≤ 0.10							48.0 - 50.0	1.0 - 3.0		bal.		
Schwermetalle / high density alloys																	
Parmaco WNiCu	W3Ni5Cu				≤ 0.50		3				5			92			
Parmaco WNiFe	W2Ni1Fe				≤ 0.015		2							97	1		
Hartmetalle / hard metals																	
Parmaco K10				K10								6					WC: 94
Parmaco K40				K40								11					WC: 89
Nickelbasislegierung / Nickel-based alloy																	
Inconel 718		2.4668	Inconel 718		<0.08	17.0 - 21.0	50.0 - 55.0		<0.35	2.80 - 3.30	<0.30	<1.00			bal.	Nb 4.75 - 5.25 / Ti 0.75 - 1.15	
Tribaloy T400			T400		<0.08	7.5 - 9.5	<1.5	2.2 - 3.0	-	27 - 30	-	Balance	-	-	<1.5	Fe + Ni <3.0	

Werkstoffübersicht / materials

Eigenschaften / properties

Werkstoff materials	DIN	Wkst-Nr.	AISI	ISO	Eigenschaften properties						
					Zustand condition	Dichte density	Härte hardness	Streckgrenze yield strength Rp0.2	Zugfestigkeit tensile strength Rm	Bruchdehnung elongation A	Oberflächengüte surface quality Ra
Niedrig legierte Stähle / low alloyed steels											
Parmaco 2NiFe					gesintert / as sintered	≥ 7.70 g/cm ³	≥ 90 HV1	100 - 220 MPa	250 - 380 MPa	32 - 44 %	≤ 1.6 μm
Parmaco 7NiFe					gesintert / as sintered	≥ 7.70 g/cm ³	≥ 100 HV1	260 - 380 MPa	380 - 500 MPa	25 - 35 %	≤ 1.6 μm
Parmaco 4140	42CrMo4	1.7225	4140		gesintert / as sintered	≥ 7.30 g/cm ³	≥ 200 HV1	≥ 500 MPa	≥ 700 MPa	≥ 5%	≤ 3.2 μm
Parmaco 4340	40NiCrMo6	1.6565	4340		gesintert / as sintered	≥ 7.30 g/cm ³	≥ 200 HV1	≥ 500 MPa	≥ 700 MPa	≥ 5%	≤ 3.2 μm
Parmaco 100Cr6	100Cr6	1.3505	52100		gesintert / as sintered	≥ 7.30 g/cm ³	≥ 200 HV1	≥ 400 MPa	≥ 900 MPa	≥ 5%	≤ 3.2 μm
Schnellarbeitsstähle / high speed steels											
Parmaco M2	S 6-5-2	1.3343	M2		gesintert / as sintered	-	≥ 600 HV1	-	-	-	≤ 3.2 μm
Ferritische, rostfreie Stähle / ferritic stainless steels											
Parmaco 17/4PH	X5CrNiCuNb17-4	1.4542	17-4PH		gesintert / as sintered	≥ 7.60 g/cm ³	≥ 200 HV1	670 - 790 MPa	880 - 1020 MPa	2 - 8 %	≤ 1.6 μm
Ferritisch-Martensitische, rostfreie Stähle / ferritic-martensitic stainless steels											
Parmaco 410	X15Cr13	-1.4024	410		gesintert / as sintered	≥ 7.40 g/cm ³	≥ 150 HV1	≥ 300 MPa	≥ 500 MPa	≥ 10 %	≤ 3.2 μm
Parmaco 430F	X12CrMo17	-1.4104	430F		gesintert / as sintered	≥ 7.20 g/cm ³	≥ 200 HV1	≥ 300 MPa	≥ 500 MPa	≥ 5 %	≤ 3.2 μm
Martensitische, rostfreie Stähle / martensitic stainless steels											
Parmaco 420	X39Cr13	-1.4031	420		gesintert / as sintered	≥ 7.20 g/cm ³	≥ 500 HV1	≥ 650 MPa	≥ 850 MPa	≥ 1 %	≤ 3.2 μm
Parmaco 440C	X105CrMo17	1.4125	440C		gesintert / as sintered	≥ 7.20 g/cm ³	≥ 200 HV1	-	-	-	≤ 3.2 μm
Austenitische, rostfreie Stähle / austenitic stainless steels											
Parmaco 316L	X2CrNiMo17-13-2	1.4404	316L		gesintert / as sintered	≥ 7.40 g/cm ³	≥ 100 HV1	150 - 230 MPa	450 - 600 MPa	45 - 60 %	≤ 1.6 μm
Hitzbeständige, austenitische, rostfreie Stähle / heat resistant austenitic stainless steels											
Parmaco HK30	X15CrNiSi2520	-1.4841	HK30		gesintert / as sintered	≥ 7.50 g/cm ³	≥ 200 HV1	≥ 350 MPa	≥ 500 MPa	≥ 10%	≤ 3.2 μm
Ausdehnungskontrollierte Werkstoffe / low expansion alloys											
Parmaco 36NiFe	FeNi36	1.3912			gesintert / as sintered	≥ 7.70 g/cm ³	≥ 100 HV1	≥ 150 MPa	≥ 290 MPa	≥ 20 %	≤ 1.6 μm
Parmaco Kovar	NiCo 29-18	1.3981			gesintert / as sintered	≥ 7.70 g/cm ³	≥ 100 HV1	≥ 200 MPa	≥ 300 MPa	≥ 20 %	≤ 3.2 μm
Weichmagnetische Werkstoffe / soft magnetic alloys											
Parmaco 3SiFe	FeSi3	1.0844			gesintert / as sintered	≥ 7.60 g/cm ³	≥ 100 HV1	≥ 300 MPa	≥ 500 MPa	≥ 20 %	≤ 1.6 μm
Parmaco 50NiFe	FeNi50	-1.3921			gesintert / as sintered	≥ 7.70 g/cm ³	≥ 100 HV1	≥ 120 MPa	≥ 400 MPa	≥ 25 %	≤ 1.6 μm
Parmaco 80NiFe	FeNi80				gesintert / as sintered	≥ 7.70 g/cm ³	≥ 100 HV1	≥ 120 MPa	≥ 400 MPa	≥ 20 %	≤ 1.6 μm
Parmaco Fe49Co2V	Fe49Co2V				gesintert / as sintered	≥ 7.70 g/cm ³	≥ 100 HV1	≥ 200 MPa	≥ 300 MPa	≥ 10 %	≤ 3.2 μm
Schwermetalle / high density alloys											
Parmaco WNiCu	W3Ni5Cu				gesintert / as sintered	≥ 17.00 g/cm ³	≥ 250 HV50	-	-	-	≤ 1.6 μm
Parmaco WNiFe	W2Ni1Fe				gesintert / as sintered	≥ 18.00 g/cm ³	≥ 290 HV10	-	-	-	≤ 1.6 μm
Hartmetalle / hard metals											
Parmaco K10				K10	gesintert / as sintered	ca. 14.80 g/cm ³	≥ 1200 HV50	-	-	-	≤ 1.6 μm
Parmaco K40				K40	gesintert / as sintered	ca. 13.90 g/cm ³	≥ 1200 HV50	-	-	-	≤ 2.0 μm