

KingCasting - Material List for Stainless Steel and Special Alloy Centrifuge Tubes & Castings

Materials Classification	Common Name	ASTM	Composition									Mechanical Properties		
			C	Mn	Si	P max	S max	Cr	Ni	Mo	others	Yield Mpa(min)	Elongation %(min)	Hardness HB
300 Series Stainless Steel	SCS16A	CF3M	<0.03	1.5	1.5	0.04	0.04	17.0-21.0	9.0-13.0	2.0-3.0	-	206	33	<183
	SCS14A	CF8M	<0.08	1.5	2.0	0.04	0.04	18.0-21.0	9.0-12.0	2.0-3.0	-	206	33	<183
	SCS13	CF8	<0.08	2.0	2.0	0.04	0.04	18.0-21.0	8.0-11.0	-	-	186	30	<183
	SCH21	CK20	0.25-0.35	1.5	1.75	0.04	0.04	23.0-27.0	19.0-22.0	-	-	235	30	163
Heat-Resistant Stainless Steel	SCH13	HH	0.2-0.5	2.0	2.0	0.04	0.04	24.0-28.0	11.0-14.0	0.5		235	8	-
	SCH22	HK	0.35-0.45	1.75	1.5	0.03	0.04	23.0-27.0	19.0-22.0	0.5	-	235	8	-
	SCH23	HL	0.2-0.6	2.0	2.0	0.04	0.04	28.0-32.0	18.0-22.0	-	-	245	8	-
	SCH24	HP	0.35-0.75	2.0	2.0	0.04	0.04	24.0-28.0	33.0-37.0	0.5	-	235	5	-
	SCH20	HU	0.35-0.75	2.0	2.5	0.04	0.04	17.0-21.0	37.0-41.0	-	-	-	4	-
	Incoloy 800H	N08810	0.1-0.15	1.25	1.5	0.03	0.03	20.0-22.0	30.0-35.0	-	N 0.14-0.2 Nb 1-2	175	15	-
	253MA	S30815	0.01 max	0.8	1.4-2	-	-	25.0-29.0	10.0-12.0	-	N 0.14-0.2 Ce 0.03-0.08	-	-	-
Precipitation Hardening Stainless Steel	SCS24 (17-4 PH ; 630)	A747 CB7Cu-1	0.07	1.0	1.0	0.04	0.04	15.5-17.7	3.0-5.0	-	Cu 2.5-4 Nb+Ta 0.15-0.45	>1030	>6	<375
Duplex Stainless Steel	CD4MCu	A890 1A	0.04	1.0	1.0	0.04	0.04	24.5-26.5	4.75-6.0	1.75-2.25	Cu 2.75-3.25	485	16	235
	ALLOY 2507	A890 6A	0.03	1.0	1.0	0.03	0.025	24.0-26.0	6.5-8.5	3.0-4.0	Cu 0.5-1.0 W 0.5-1.0 N 0.1-0.3	550	25	<300
	ALLOY 2205	A890 4A	0.03	1.5	1.0	0.04	0.02	21.0-23.5	4.5-6.5	2.5-3.5	Cu<1 N 0.1-0.3	415	25	235
Valve Steel	SUH4	-	0.75-0.85	0.2-0.6	1.75-2.25	0.03	0.03	19.0-20.5	1.15-1.65	-	V 0.25-0.5	685	15	>262
Nickel-Resistant Ductile Iron	FCDA-Ni35 (INVAR; Low Expansion Iron Steel)	Ni-Resist 5	<2.4	0.5-1.5	1.5-3	-	-	-	34.0-36.0	-	Fe bal. (Co 0-6)	207	7	130-180
	FCDA-NiCr20 2	Ni-Resist 2	<3.0	0.5-1.5	1.5-3			1.5-2.5	18.0-22.0	-	Cu 0.5 max	207	7	150
Wear-Resistant High-Chromium High-Speed Steel	SKH55	M35	0.88-0.95	<0.4	<0.4	0.03	0.03	3.8-4.5		4.75-5.2	V1.75-2W6-6.7Co4.6-5	-	-	>722
	(KC-3X)	A532 ClassII	2.0-3.3	2.0	1.0	0.04	0.04	12.0-18.0	2.5 max	3.0 max	4.0 max	450	-	350-650
	(KC-5X)	A532 ClassII	2.0-3.3	2.0	1.0	0.04	0.04	12.0-18.0	2.5 max	3.0 max	4.0 max	450	-	350-680
	(KC-6X)	A532 ClassII	2.0-3.3	2.0	1.0	0.04	0.04	12.0-18.0	2.5 max	3.0 max	4.0 max	450	-	350-710
	(KC27)	A532 ClassIII	2.0-3.3	2.0	1.0	0.04	0.04	26.0-28.0	2.5 max	3.0 max	4.0 max	450	-	350-680
	(KC27X)	A532 ClassIII	2.0-3.3	2.0	1.0	0.04	0.04	26.0-28.0	2.5 max	3.0 max	4.0 max	450	-	640-710
	(KC128)	-	0.5 max	2.0	1.0	0.04	0.04	9.0-12.0	-	1.0-3.0	Co 10.0	450	-	320-520

KingCasting - Material List for Special Alloy Centrifuge Tubes & Castings

Materials Classification	Common Name	ASTM	Composition									Mechanical Properties		
			C max	Mn max	Si max	P max	S max	Cr	Ni	Mo	others	Yield Mpa(min)	Elongation %(min)	Hardness HB
Special Corrosion-	Alloy20 Cb3	N08020	0.07	2.0	1.0	0.03	0.03	19.0-21.0	32-38	2.0-3.0	Cu3-4 Nb0.25-1			
	904L	N08904	0.02	2.0	1.0	0.03	0.03	22.0	25.5	4.5	Cu1.5			
Nickel-Based Alloys	Hastelloy C276	CW-12MW	0.12	1.0	1.0	0.04	0.03	15.5-17.5	bal.	16.0-18.0	Fe 4.5-7.5 W 3.75-5.25 V 0.2-0.4	275	4	-
	Hastelloy B	N12-MV	0.12	1.0	1.0	0.04	0.03	1.0	bal.	26.0-30.0	Fe 4-6	275	6	-
	Hastelloy C22	CX2MW	0.02	1.0	0.8	0.025	0.02	20.0-22.5	bal.	12.5-14.5	Fe2-6 W 2.5-3.5 V <0.35	280	30	-
	Monel 400	M-35-1	0.12	1.5	1.25	0.03	0.03	-	bal.	-	Cu 26-33 Fe 3.5 max	170	25	-
	Inconel 600	CY-40	0.4	1.5	3.0	0.03	0.03	14.0-17.0	bal.	-	Fe 11 max	195	30	-
	Inconel 625	CW-6MC	0.06	1.0	1.0	0.015	0.015	20.0-23.0	bal.	8.0-10.0	Fe 5.0 max Cb 3.15-4.5	275	25	-
	50-50	A560 Grade 50Cr-50Ni	0.1	-	-	-	-	48.0-52.0	bal.	-	Fe 1.0 max			
	SUPER22H	----	0.4-0.6	2.0	2.0	0.04	0.04	25.0-29.0	45.0-50.0	-	W 4.0-6.0 Co2.5-4.0 super	196	6	
	MORE-2	----	0.15-0.25	-	-	-	-	32.0-34.0	48.0-52.0	-	W 15.0-17.0	235	3	-

Materials Classification	Common Name	ASTM	Composition									Mechanical Properties		
			C	Mn	Si	Co	W	Cr	Ni	Mo	other	Yield Mpa(min)	Elongation %(min)	Hardness
Cobalt-Based Alloys	Stellite 1	UNS R30001	1.7-2.5	0.5 max	0.8-2.0	bal.	11.0-13.0	29.0-32.0	1.5 max	0.5 max	Fe 3.0 max	-	-	> 50 HRC
	Stellite 4	UNS R30404	0.60-1.10	1.0 max	1.5 max	bal.	12.0-16.0	28.0-32.0	3.0 max	-	Fe 3.0 max	-	-	45-49 HRC
	Stellite 6	UNS R30006	0.9-1.4	1.0-2.0 max	2.0 max	bal.	3.5-5.5	26.0-32.0	3.0-5.0	1.5 max	Fe 3.0-6.0 max	-	-	36-45 HRC
	Stellite 12	UNS R30012	1.7-2.0	1.0 max	0.40	bal.	14.0-16.0	27.0-32.0	19.0-21.0	1.0 max	Fe 3.0 max	-	-	45-51 HRC
	HAYNES Alloy 25	UNS R30605	0.05-0.15	1.0 - 2.0	0.40 max	bal.	14.0-16.0	19.0-21.0	9.0-11.0	-	Fe 3.0 max P 0.04 max S 0.03 max	-	-	-
	KHR40CM	----	0.15 max	----	0.50-1.50	38.0-42.0	-	25.0-29.0	15.0-19.0	0.5-1.5	Fe bal.	-	-	180-185 HB
	F75	F75	0.35 max	1.0 max	1.0 max	bal.	-	27.0-30.0	0.5 max	5.0-7.0	Fe 0.75 max	665	8	25-35 HRC