

	Technical Data Sheet										DOC.NO : SARA/DOC/R&D/020
											REVISION NO : 1.0
											EFFECTIVE DATE : 08-04-2025

S.NO.	MATERIAL GRADE	PHYSICAL PROPERTIES						CHEMICAL PROPERTIES						
		COLOUR CODE			TENSILE STRENGHT	YIELD STRENGTH	% OF ELONGATION	CARBON	IRON	MAGNESIUM	SILICON	ZINC	PHOSPHORUS	SULPHUR
1	AISI 1018	yellow /green			440 MPa to 550 Mpa	280 MPa to 370 Mpa	15% to 25%	0.15–0.20%	Balance	0.60–0.90%	0.10% to 0.35%	< 0.01% zinc	≤ 0.04%	≤ 0.05%
2	MS	Green			370–440 MPa (53,000–64,000 psi)	250 MPa (36,000 psi)	20% to 25%	0.15–0.25%	Balance	0.30–0.60%	0.10% to 0.35%	NILL	≤ 0.04%	≤ 0.05%
3	En-31	Orange & Yellow			750–1050 Mpa	450 Mpa	8% to 12%	0.90 – 1.20%	Balance	0.30 – 0.75%	0.10 – 0.35%	NILL	≤ 0.05%	≤ 0.05%
4	En-353	Red & White			850–1100 Mpa	550 Mpa	10% to 15%	0.17 – 0.23%	Balance	0.50 – 0.80%	0.10 – 0.35%	NILL	≤ 0.04%	≤ 0.04%
5	AISI440C	yellow & Brown			760–1970 Mpa	450–1900 Mpa	10% to 15%	0.95 – 1.20%	Balance	0.50% max	1.00% max	NILL	≤ 0.04%	≤ 0.03%
6	Spring Steel	White& ORANGE			900–2000 Mpa	600–1200 MPa	8% to 20%,	0.70–1.00%	Balance	0.30–0.90%	0.15–0.35%	NILL	≤ 0.04%	≤ 0.05%
7	AISI-304	Orange			515–720 Mpa	205 MPa (30,000 psi)	40%	≤ 0.08%	Balance	≤ 2.00%	≤ 0.75%	NILL	≤ 0.045%	≤ 0.03%
8	SS 304L	BLACK & VIOLET			485–690 Mpa	170 MPa	45% to 50%	≤ 0.03%	Balance	≤ 2.00%	≤ 0.75%	NILL	≤ 0.045%	≤ 0.03%
9	AL 6061 T6	Brown			310 Mpa	275 Mpa	12% to 20%	< 0.05%	≤ 0.7%	≤ 0.15%	0.4 – 0.8%	≤ 0.25%	< 0.05%	< 0.05%
10	AL 2024 T351	Red & Brown			470 MPa	345 MPa	12% to 15%	< 0.05%	< 0.5%	0.3 – 0.9%	< 0.5%	≤ 0.25%	< 0.05%	< 0.05%
11	AL 6061 T651	Brown & yellow			310 MPa	276 MPa	12% to 17%	< 0.05%	≤ 0.7%	≤ 0.15%	0.4 – 0.8%	≤ 0.25%	< 0.05%	< 0.05%
12	AL 5083	Brown & Blue			345 MPa	240 MPa	8% to 12%	< 0.05%	≤ 0.40%	4.0 – 4.9%	≤ 0.40%	≤ 0.25%	< 0.05%	< 0.05%
13	En -30	Orange & red			1100-1500 Mpa	850–1200 MPa	10-15%	0.26 – 0.36%	Balance	0.45 – 0.70%	0.10 – 0.35%	< 0.05%	≤ 0.035%	≤ 0.035%
14	En-5	Blue Grey			500-700 Mpa	350–500 MPa	12-18%	0.30 – 0.40%	Balance	0.60 – 0.90%	0.10 – 0.35%	NILL	≤ 0.050%	≤ 0.050%
15	BMS	Green & Orange			400-600 Mpa	250–400 MPa	15-25%	0.15 – 0.25%	Balance	0.30 – 0.60%	≤ 0.05%	NILL	≤ 0.050%	≤ 0.050%
16	ASTM A 352	white Blue			485-655 Mpa	240–485 MPa	18-30%	0.25% - 0.40%	95% - 98%	--	0.50% - 2.00%	NILL	0.04% max	0.05% max
17	P110	BROWN & YELLOW			≥ 862 MPa	≥ 758 MPa	10-15%	0.35 – 0.45%	Balance	0.25 – 1.00%	≤ 0.45%	NILL	≤ 0.020%	≤ 0.010%
18	Brass -IS-319	White-Black-White			300 – 500 MPa	100 – 250 MPa	10 – 40%	< 0.05%	0.50%	0.10%	0.10%	30% - 35%	0.05%	0.05%
19	Naval Brass -- IS-291	White-Red-White			345 – 600 Mpa	125 – 275 Mpa	15 – 40%	0.05% max	0.50% max	NILL	0.10% max	30% - 36%	0.02% max	0.05% max
20	Aluminum Bronze --IS-10569	White-Blue-White			≥ 550 – 800 MPa	≥ 250 – 450 MPa	10 – 25%	0.10% max	4% max	0.10% max	0.50% max	5% max	0.03% max	0.05% max
21	Phosphor Bronze --IS-7811	White- Yellow-White			500 – 800 MPa	250 – 500 MPa	5 – 30%	0.10% max	0.50% max	0.10% max	0.10% max	1% max	0.03% - 0.35%	0.05% max
22	Copper -- IS-4171	Blue—red-Blue			200 – 400 MPa	50 – 200 MPa	≥ 30%	0.03% max	0.01% max	0.01% max	0.02% max	0.01% max	0.02% max	0.02% max

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08/04/2025

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		PHYSICAL PROPERTIES								CHEMICAL PROPERTIES										
S.NO.	MATERIAL GRADE		COLOUR CODE					TENSILE STRENGHT	YIELD STRENGTH	% OF ELONGATION	TIN	COPPER	CARBON	IRON	MAGNESIUM	ALUMINIUM	SILICON	ZINC	PHOSPHORUS	SULPHUR
23	Tin Bronze		Blue-White-Blue					240 MPa to 450 MPa	120 MPa to 300 MPa	5% to 20%	5-12%	Balance	<0.05%	<0.20%	<0.05%	-	<0.20%	< 1.0%	≤ 0.35%	≤ 0.05%

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