

MATERIAL DATA SHEET · LOW-TEMPERATURE CARBON STEEL (LTCS)

ASTM A420 WPL3 — Chemical Composition & Mechanical Properties

Teshi Group document TG-MG-101 · Rev. 1 · October 2026 · www.teshigroup.com/material-grades/astm-a420-wpl3/

ASTM A420 WPL3 is a low-temperature carbon steel (ltcs) grade for wrought butt-weld fittings. It is also known as 3.5 Ni. This sheet summarises its chemical composition limits, minimum mechanical properties, heat treatment and typical service. Teshi Group manufactures flanges and fittings in this grade.

At a glance

Material family	Low-temperature carbon steel (LTCS)
Product form	Wrought butt-weld fittings
Also known as	3.5 Ni

Mechanical properties

Tensile strength, min	450 MPa
Yield strength (0.2 % offset), min	240 MPa
Elongation, min	22 %
Charpy V-notch test temperature	-101 °C
Hardness	Not specified

Chemical composition (weight %)

C 0.20 max	Mn 0.31–0.64	P 0.05 max	S 0.05 max	Si 0.13–0.37
Ni 3.2–3.8				

Single values are maximums unless shown as a range or "min".

Heat treatment

Normalised

Typical service

3.5 % nickel butt-weld fittings for -101 °C service

International equivalents (nearest)

USA — ASTM / ASME	ASTM A420 WPL3 · ASME SA-420 WPL3
Europe — EN designation	12Ni14 (EN 10216-4)
Europe — W.Nr	1.5637
Japan — JIS	STPL450 (JIS G3460)
China — GB / NB	06Ni3MoDG (GB/T 18984)
UK — BS (withdrawn)	BS 3603 503 LT100

Teshi Group — OEM manufacturer of flanges, pipe fittings, fasteners, valves and fabrications; stockist and supplier of pipes, plates and structural steel. ISO 9001:2015 · IBR approved · since 1971. Enquiries: info@teshigroup.com · sales@teshigroup.com · +91 78900 09110

Reference information compiled from the published standard for convenience. It does not replace the current edition of the governing standard, which takes precedence. Verify critical properties before design, purchase or fabrication. Teshi Engineers & Sales Promoters (P) Ltd accepts no liability for errors or omissions.