

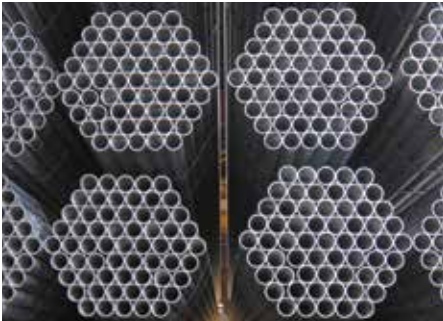
TATA STEEL



Install[®] Plus 235 & Inline[™] 265

Premium hot-finished, multi-certified tubes for building, engineering and industrial services





Because not all tubes are the same

Always ask for Install® Plus 235 & Inline™ 265 by name

Tata Steel

We are the UK's largest manufacturer of premium, high quality, carbon steel tubes. Whilst all tubes may look the same, there can be significant differences in product reliability and performance as a result of different manufacturing routes.

Hot vs. cold

Tata Steel's hot-finished products provide uniform stress-free tubes, consistent mechanical properties, improved service life, enhanced ductility and can be more readily manipulated without the risk of failure, compared to comparable commodity cold-formed alternatives.

Multi-certified tubes

Install® Plus 235 and Inline™ 265 provide a simplified approach to satisfying the widest range of pipework standards, market and customer application requirements.

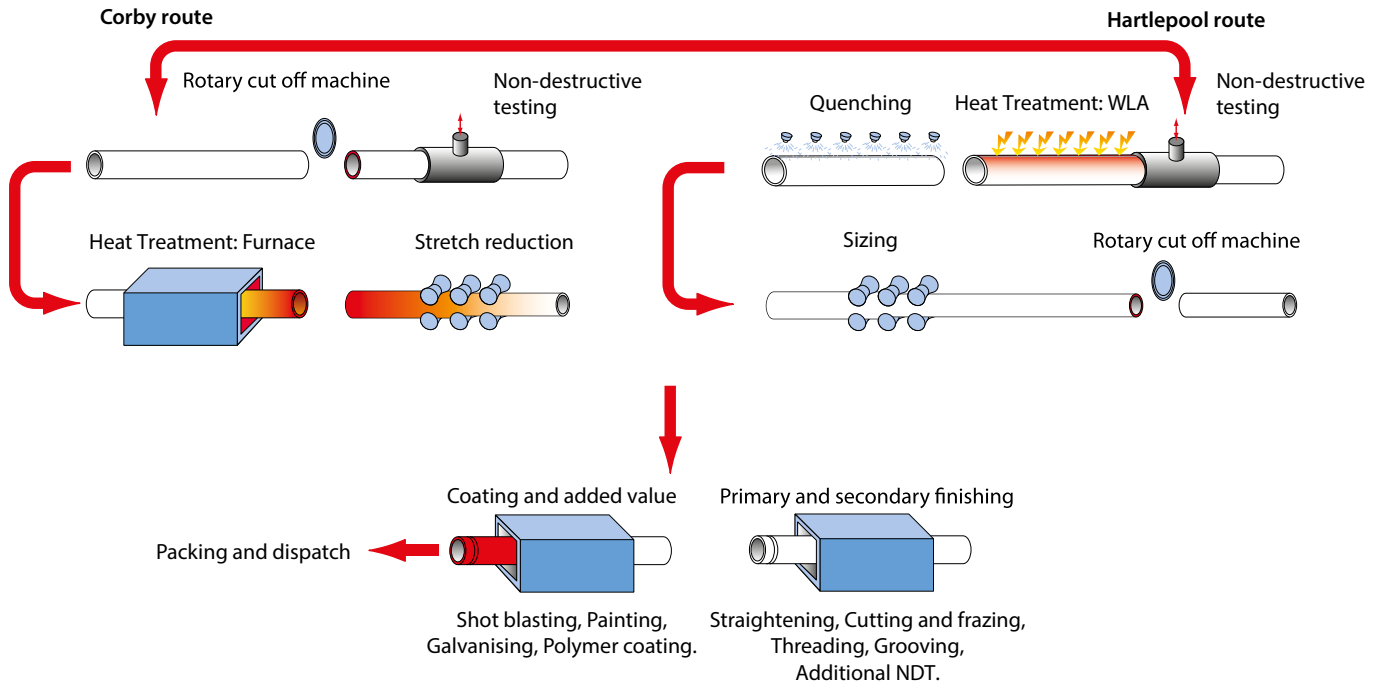
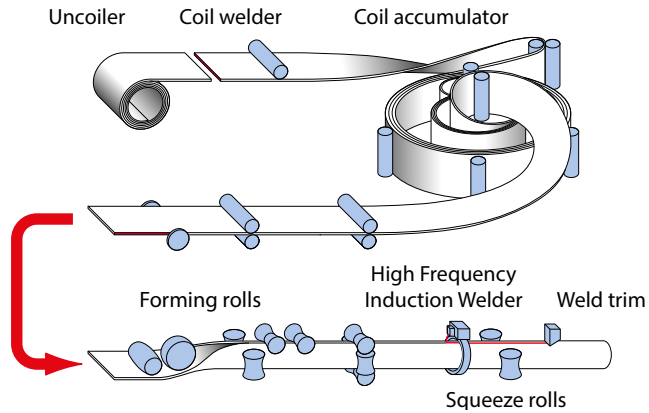
Seamless substitution

Install® Plus 235 and Inline™ 265 are an ideal cost-effective substitute for comparable seamless products, and deliver improved ovality, uniform wall thickness, and tighter control on fixed lengths and end matching.

Technical support

Tata Steel technical experts are available to assist you on application and product suitability. Please contact us via the Tubes Technical Helpline on +44 (0) 1536 404561.

Hot-finished manufacturing





Do you know what's in your project?

Hot-finished vs. cold-formed



Today's market risks

Customers are faced with a confusing assortment of current and old specifications, making it difficult to know which tube product is best suited for their project.

There is a difference

Tubes made by different manufacturing routes do result in significant differences in reliability and performance. Hot-finished tubes are technically superior to cold-formed alternatives.



Poor specifications

Outdated or incorrect pipework specifications can leave projects exposed to the risk of poor quality, commodity products getting into the supply chain. Such products are typically commodity cold-formed and can suffer from performance, compliance, warranty and traceability issues.

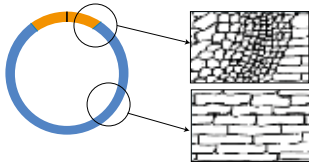
Make sure it's hot

Ensuring your specifications are correct, asking for a Tata Steel hot-finished product, making reference to a GH (Get Hot) grade and checking procurement documentation or looking for Tata Steel on the product marking, is the only way you can protect yourself from the risk of cold-formed products.

Disadvantages of cold-formed tubes

Cold-formed tubes still have their Heat Affected Zone (HAZ) as a result of their manufacturing process. This is an area around the weld-seam that is an area of weakness as it has:

- An inconsistent microstructure
- Pockets of stress that can promote cracking
- Inconsistencies in mechanical properties and strength
- Poorer toughness than the tube body
- Increased risk of splitting
- Poorer pressure integrity
- Reduced performance against corrosion
- Poorer bending abilities

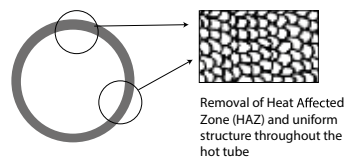


Advantages of hot-finished

Our hot-finished tubes do not have a Heat Affected Zone (HAZ), as this is fully removed during the hot-manufacturing (normalising) process.

This results in a superior product as it has:

- An ordered and consistent microstructure
- No internal stress that can promote cracking
- Consistent and reliable mechanical properties
- Improved structural integrity and ductility
- Improved and consistent toughness
- Higher pressure integrity
- Greater factor of safety
- No loss of strength during additional welding or heating
- Improved performance against corrosion
- Ability to be bent to tight radii without splitting, creasing or collapsing



Removal of Heat Affected Zone (HAZ) and uniform structure throughout the hot tube



Correct specifications for Technical Submissions

Old standards	Issues	Correct standards and grades	Tata Steel offering
BS1387, EN10217-1	<ul style="list-style-type: none"> ■ BS1387 was withdrawn in 2004, and should not be referred to. It does not satisfy the essential requirements of the Construction Products Regulations (CPR) or today's CE marking requirements. ■ EN10217-1 is an ambient temperature use standard only, and has restricted use under the Pressure Equipment Directive (PED). ■ Only by specifying to the Part 2 can a GH (Get Hot) product be supplied, one that is suitable for a wider temperature range and covers more applications under the PED. 	BS EN10255 / 10217-2 Grade S/P235GT/GH	INSTALL* PLUS 235 Hot-finished Sizes 15 – 150nb
BS3601, API EN10217-1 EN10216	<ul style="list-style-type: none"> ■ BS3601 was withdrawn in 2002 and should not be referred to. ■ API is an American standard, so can't be used by itself as it is not harmonised with the PED, it needs to be multi-certified with other EN's. ■ EN10217-1 is an ambient temperature use standard only, and has restricted use under the PED. ■ EN10216 is seamless, and will be imported into the UK. Seamless can suffer from ovality and wall thickness consistency issues. 	BS EN10217-2 / ISO3183 & API5L Grade P265GH/B	INLINE* 265 Hot-finished, Uti 500nb

Note: Only by including BS EN10217-2 can you guarantee a GH (Get Hot) tube.



Install[®] Plus 235

Hot-finished, multi-certified conveyance tubes for pipework applications

**Based on EN10255 with
multi-certified options**

Primary grade S235GT

**Building, engineering and
industrial services solutions**

GH = Get Hot grade

Application benefits

- The perfect replacement for the old withdrawn BS1387.
- New stronger and more robust S235GT grade compared to the withdrawn BS1387 and previous EN10255 S195T products.
- Multi-certified with key industrial pipework standards to satisfy a wider range of applications, including seamless substitution.
- Fully hot-finished for improved manipulation, installation and service life benefits.
- Available in a range of sizes and weights, with coating (red painted or galvanised) and end (screwed and socketed, grooved or plain end) added value options.

Improved performance

- Available with the new and improved Tata Steel Red paint for increased external corrosion resistance and service life.
- Extended temperature range of -20 to 300°C with improved pressure integrity.

Fit-for-purpose

- Fully Construction Products Regulations (CPR) compliant, CE marked CPR CAT3 (fuel, gas, air) and CAT4 (water).
- Fully aligned with the Pressure Equipment Directive (PED).
- Comprehensive product datasheets and Declarations of Performance (DoP's) available upon request.

Install® Plus 235 application guidance

Applications	Install® Plus 235				Carbon Steel Press Fit			
	ID Self Colour		ID galvanised		ID Self Colour		ID Galvanised	
Heating systems (>60°C) - open	Yes		No		No		No	
Heating systems (>60°C) - closed	Yes		No		Yes		No	
Chilled water systems - open	Yes		Yes		No		No	
Chilled water systems - closed	Yes		Yes		Yes		Yes	
Air conditioning	Yes		Yes		Yes		Yes	
Fire sprinkler systems	Yes		Yes		No		Yes**	
Steam services	Yes		No		No		No	
Natural gas	Yes		Yes		No		No	
LPG	Yes		No		No		No	
Fuel oils	Yes		No		No		No	
Compressed air	No		Yes		No		Yes	
CPR Compliance (EN10255)	Yes				No			
PED Conformity (EN10217 -1 & 2)	Yes				No			
CE marked (EN10255)	Yes				No			
Pressure ratings	# See below pressure table				16 bar max*			
Size range (OD)	21.3 to 165.1 mm				12 to 108 mm*			
Operating temp	-20 to 300° C as standard -40° C by special agreement				-20 to 110° C*			

Depending on wall thickness and joint * Typical values obtained from public domain data **Wet systems only

Install® Plus 235 product and pressure data

Tube size			(A) Suggested maximum design pressure (bar) for screwed and socketed joints. Correctly made-up using suitable and appropriate jointing compounds.						(B) Suggested maximum design pressure (bar) for tube or full penetration butt-welded joints. Butt-welded joints prepared in accordance with current best practice (based on S235GT/P235GH mechanical properties)							
			Water -20 to 60°C		Compressed Air		Steam to 300°C max		-20 to 60°C		100°C max		150°C max		300°C max	
OD	Nominal bore (NB)		Tube weight (M = Medium, H = Heavy)						Tube weight (M = Medium, H = Heavy)							
mm	mm	inch	M	H	M	H	M	H	M	H	M	H	M	H	M	H
21.3	15	½	80	100	70	90	10	12	233	270	190	234	182	225	128	158
26.9	20	¾	75	90	65	80	10	12	186	215	152	187	146	179	103	126
33.7	25	1	70	85	60	75	10	12	172	215	149	186	143	179	101	126
42.4	32	1¼	55	70	50	65	9	10	137	171	119	148	114	143	80	100
48.3	40	1½	45	60	40	55	9	10	120	150	104	130	100	125	71	88
60.3	50	2	40	55	35	50	7	9	109	136	94	118	91	113	64	80
76.1	65	2½	35	45	30	40	7	9	86	108	75	93	72	90	51	63
88.9	80	3	30	40	25	35	7	9	82	103	71	89	68	85	48	60
114.3	100	4	25	35	20	30	5.5	7	72	86	62	75	60	72	42	51
139.7	125	5	25*	30*	20*	25*	5.5*	7*	65	70	57	61	54	59	38	41
165.1	150	6	20*	25*	15*	20*	4*	5.5*	55	60	48	52	46	50	32	35

For larger Install® Plus XL EN10255 sizes, please refer to our Inline™ product literature for full details. * Guidance only, we do not supply 5" and 6" screwed and socketed products.



Inline™ 265

Hot-finished, multi-certified pressure tubes for specialist applications

Based on EN10217-2/ISO3183/
API 5LB with multi-certified
options

Primary grade P265 GH/TC1

Specialist building,
engineering and industrial
services solutions

GH = Get Hot grade

Application benefits

- Full body normalised for Corby sizes (\leq OD168.3 mm) and normalised rolled strip with Weld Line Annealed (WLA) for Hartlepool sizes (\geq OD219.1 mm) delivering improved manipulation, installation and service life benefits.
- Fully killed steel designed to eliminate any tendency for strain age embrittlement when in service.
- Fully weldable and traceable steel.
- Multi-certified with key industrial pipework standards for maximum flexibility.
- Available in a range of key industrial sizes and wall thickness.
- End (plain end or bevelled) and coating added value options available – please check on availability.

Wide application range

- Satisfies both PSL1 and PSL2 of API 5L Grade B and EN ISO3183 L245 as standard.
- Design temperature -20 to 400 °C.
- A cost-effective substitute for equivalent seamless tube grades.

Fit-for-purpose

- Supplied with 3.1 inspection certification to EN10204.
- Fully aligned with the Pressure Equipment Directive (PED).
- Comprehensive product datasheets and Declarations of Performance (DoP's) available upon request.

Inline™ 265 application guidance

Applications	Inline™ 265	Comparable seamless
Low pressure gas (≤ 16 bar)	Yes	Yes
Specialist industrial HVAC	Yes	Yes
Steam services	Yes	Yes
Petro-chemical	Yes	Yes
Process plant	Yes	Yes
LPG & fuel oils (self colour only)	Yes	Yes
On-shore gas/line pipe (Not Annex 'M')	Yes	Yes
Industrial conveyance	Yes	Yes
Suggested max. design temperature	400° C	450° C
Consistent ovality	Yes	No
Consistent wall thickness	Yes	No
Consistent end-matching	Yes	No
Fixed lengths as standard	Yes	No

* For ISO3183 Annex 'M' please contact the Tubes Technical Helpline for details on availability.

Inline™ 265 product and pressure data

OD (mm) (NB) (inches)	Thickness (mm)	Designation		Mass (kg/m)	Length/Weight (m/tonne)	Suggested maximum design pressure (bar), based on L245/245 MPa min. yield	
		Strength	Schedule			Ambient Temp.	Elevated Temp 400° C
60.3 (50) (2")	3.91	STD	40	5.42	184.5	148	69
88.9 (80) (3")	5.49	STD	40	11.31	88.4	142	66
114.3 (100) (4")	6.02	STD	40	16.02	62.4	121	56
168.3 (150) (6")	7.11	STD	40	28.22	35.4	97	45
219.1 (200) (8")	6.35	N/A	20	33.57	29.8	65	32
	8.18	STD	40	42.65	23.5	85	40
273.0 (250) (10")	6.35	N/A	20	42.09	23.8	52	25
	9.27	STD	40	60.5	16.5	77	37
323.9 (300) (12")	6.35	N/A	20	50.11	20	44	21
	9.53	STD	-	73.65	13.6	66	32
355.6 (350) (14")	7.92	N/A	20	67.74	14.8	50	24
	9.53	STD	30	81.08	12.3	60	29
406.4 (400) (16")	7.92	N/A	20	77.63	12.9	44	21
	9.53	STD	30	92.98	10.8	53	25
457.1 (450) (18")	7.92	N/A	20	87.49	11.4	39	19
	9.53	STD	-	104.84	9.5	47	23
508.0 (500) (20")	9.53	STD	20	116.78	8.6	42	20

Only key sizes shown – other sizes are available, please refer to the main Inline™ technical brochure, or contact the Tubes Technical Helpline for full details.

Additional supporting product data

	Install™ Plus 235		Inline™ 265	
Technical delivery condition	Hot-finished		Hot-finished	
Delivery condition and size range	Hot		OD60.3 - 168.3 mm	
	WLA (Weld Line Annealed)		OD219.1 - 508.0 mm	
Main targeted application	Building, engineering and industrial services		Specialist building, engineering and industrial services	
Ideal applications	HVAC, M&E, fire defence, general industrial conveyance		Process plant, industrial conveyance and linepipe oil & gas (gas ≤16 bar only)	
Main product specification standards	BS EN10255 / BS EN10217-2		API5L Grade B / BS EN10217-2 / ISO3183	
Primary grade / min. yield strength MPa	235		265~	
Tensile strength MPa	360-500		415-570	
Elongation (longitudinal min.) %	25		23	
Design temperature range (°C) #	-20 to 300		-20 to 400	
Seamless substitute	Yes		Yes	
Primary manufacturing standard and grade	BS EN10255	S235GT	BS EN10217-2	P265GH/TC1
	BS EN10255	S195T & S195GT	BS EN10217-1 (Note 1)	P265TR1 & TR2
Other standards and grades that our hot-finished tubes also cover Please refer to the Tubes technical support document TST41 for full details of our offering, technical delivery conditions and products statements	BS EN10217-1 (Note 1)	P195TR1 & TR2	API 5L	Grade B PSL 1 & 2 (BN/BM)
		P235TR1 & TR2		X-grades - contact us to discuss
	BS EN10217-2	P195GH/TC1	ISO3183	L245
		P235GH/TC1	EN10255 (OD219.1 - 323.9 mm)	S235GT
Generally equivalent offering Please refer to the Tubes technical support document TST41 for full details of our offering, technical delivery conditions and products statements	BS1387	S195	EN10208-1	L235GA (grade and composition)
	NF EN10255	S195 (G)T & S235(G)T		L245GA (grade and composition)
	EN10208-1	L235GA (grade and composition)	ASTM A53	Grade B
	ASTM A53	Grade A	ASTM A106	Grade B
	ASTM A106	Grade A	ASTM A106	Grade C
	EN10216-1	P195TR1 & P235TR2	EN10216-2	P265GH/TC1
	EN10216-2	P195GH/TC1 & P235GH	EN10216-2	P195GH/TC1 & P235GH
Test certification (Per EN10214)	2.2 Test report (on request)		3.1 Test certificate	
PED (Pressure Equipment Directive)	Full compliance (TC1)		Full compliance (TC1-4)	
CE marking CPR (Construction Products Regulations)	CAT 3 & 4 water, fuel and gas		CAT 3 & 4 water, fuel and gas*	

~ Min yield 290MPa for ≥OD219.1mm # Lower temperatures may be possible – contact one of our technical experts to discuss

* Only for sizes aligned with EN10255 S235GT

Alignment with other standards may be possible – contact one of our technical experts to discuss your requirements in full

Note 1: Our GH / Hot-finished tubes can also be certified to BS EN10217-1, but a Part 1 / cold-formed tube cannot be a GH (Get Hot) grade.

Product offering for Install[®] Plus 235

Thread Size	Specified Outside Diameter	NB	Thickness (mm)								
			2.30	2.60	2.90	3.20	3.60	4.00	4.50	5.00	5.40
R (inch)	D (mm)										
⅜	17.2	10	Medium		Heavy						
½	21.3	15		Medium		Heavy					
¾	26.9	20		Medium		Heavy					
1	33.7	25				Medium		Heavy			
1¼	42.4	32				Medium		Heavy			
1½	48.3	40				Medium		Heavy			
2	60.3	50					Medium		Heavy		
2½	76.1	65					Medium		Heavy		
3	88.9	80						Medium		Heavy	
4	114.3	100							Medium		Heavy
5	139.7	125								Medium	Heavy
6	165.1	150								Medium	Heavy

How to order: By brand, please ask for TATA STEEL'S INSTALL[®] PLUS 235 HOT-FINISHED, MULTI-CERTIFIED TUBE, GRADE S/P235GT/GH (GET HOT), CE-CPR-CAT3&4 or by specification BS EN10255/10217-2 GRADE S/P235GT/GH (GET HOT), CPR-CAT3&4, UK Made.

Product offering for Inline[™] 265

Thread size	Specified Outside Diameter	NB	Thickness (mm)								
			3.9	5.5	6.0	6.4	7.10	7.9	8.2	9.3	9.5
R (inch)	OD (mm)										
2	60.3	50.0	STD Sch40								
3	88.9	80.0		STD Sch40							
4	114.3	100.0			STD Sch40						
6	168.3	150.0					STD Sch40				
8	219.10	200.0				N/A Sch20			STD Sch40		
10	273.00	250.0				N/A Sch20				STD Sch40	
12	323.90	300.0				N/A Sch2					STD N/A
14	355.60	350.0						N/A Sch20			STD Sch30
16	406.40	400.0						N/A Sch20			STD Sch30
18	457.00	450.0						N/A Sch20			STD N/A
20	508.00	500.0									STD Sch20

STD = Standard Weight, N/A = available size but non-standard Sch, Sch = Schedule, Other sizes may be available upon request

How to order: By brand, please ask for TATA STEEL'S INLINE[™] 265 HOT-FINISHED, MULTI-CERTIFIED TUBE, GRADE P265GH (GET HOT) & API5L B or by specification BS EN10217-2/ISO3183/API5L GRADE P265GH (GET HOT)/L245/B, UK Made.

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