

welded tube EN 10217-7

[short name: RO.*](#)



technical product sheet

D	s	Ausf	TC	Tol	kg	Art.-Nr.
17,2	1,6	ungeglüht	TC1	D3/T3	0,625	RO-017-016
17,2	1,6	geglüht	TC1	D3/T3	0,625	RO-017-G16
17,2	2,0	ungeglüht	TC1	D3/T3	0,761	RO-017-020
17,2	2,0	geglüht	TC1	D3/T3	0,761	RO-017-G20
17,2	2,0	geglüht	TC2 (AD2000/W2)	D3/T3	0,761	RO-017-A20
17,2	2,3	ungeglüht	TC1	D3/T3	0,858	RO-017-023
17,2	2,3	geglüht	TC1	D3/T3	0,858	RO-017-G23
21,3	1,6	ungeglüht	TC1	D3/T3	0,789	RO-021-016
21,3	1,6	geglüht	TC1	D3/T3	0,789	RO-021-G16
21,3	2,0	ungeglüht	TC1	D3/T3	0,997	RO-021-020
21,3	2,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	0,967	RO-021-U20
21,3	2,0	geglüht	TC1	D3/T3	0,967	RO-021-G20
21,3	2,0	geglüht	TC2 (AD2000/W2)	D3/T3	0,967	RO-021-A20
21,3	2,6	ungeglüht	TC1	D3/T3	1,220	RO-021-026
21,3	2,6	geglüht	TC1	D3/T3	1,220	RO-021-G26
21,3	3,0	ungeglüht	TC1	D3/T3	1,353	RO-021-030
26,9	1,6	ungeglüht	TC1	D3/T3	0,725	RO-026-010
26,9	1,6	ungeglüht	TC1	D3/T3	1,014	RO-026-016
26,9	1,6	geglüht	TC1	D3/T3	1,014	RO-026-G16
26,9	2,0	ungeglüht	TC1	D3/T3	1,247	RO-026-020
26,9	2,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	1,247	RO-026-U20
26,9	2,0	geglüht	TC1	D3/T3	1,247	RO-026-G20
26,9	2,0	geglüht	TC2 (AD2000/W2)	D3/T3	1,247	RO-026-A20
26,9	2,6	ungeglüht	TC1	D3/T3	1,587	RO-026-026
26,9	2,6	geglüht	TC1	D3/T3	1,582	RO-026-G26
26,9	2,6	geglüht	TC2 (AD2000/W2)	D3/T3	1,582	RO-026-A26
26,9	3,0	ungeglüht	TC1	D3/T3	1,795	RO-026-030
33,7	1,6	ungeglüht	TC1	D3/T3	2,000	RO-033-016
33,7	1,6	geglüht	TC1	D3/T3	1,286	RO-033-G16
33,7	2,0	ungeglüht	TC1	D3/T3	1,588	RO-033-020
33,7	2,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	1,588	RO-033-U20
33,7	2,0	geglüht	TC1	D3/T3	1,588	RO-033-G20
33,7	2,0	geglüht	TC2 (AD2000/W2)	D3/T3	1,588	RO-033-A20
33,7	2,6	ungeglüht	TC1	D3/T3	2,025	RO-033-026
33,7	2,6	ungeglüht	TC2 (AD2000/W2)	D3/T3	2,025	RO-033-U26
33,7	2,6	geglüht	TC1	D3/T3	2,030	RO-033-G26
33,7	2,6	geglüht	TC2 (AD2000/W2)	D3/T3	2,025	RO-033-A26

D	s	Ausf	TC	Tol	kg	Art.-Nr.
33,7	3,0	ungeglüht	TC1	D3/T3	2,306	RO-033-030
33,7	3,2	ungeglüht	TC1	D3/T3	2,451	RO-033-032
33,7	3,2	geglüht	TC1	D3/T3	2,450	RO-033-G32
42,4	1,6	ungeglüht	TC1	D3/T3	1,635	RO-042-016
42,4	1,6	geglüht	TC1	D3/T3	1,635	RO-042-G16
42,4	2,0	ungeglüht	TC1	D3/T3	2,023	RO-042-020
42,4	2,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	2,023	RO-042-U20
42,4	2,0	geglüht	TC1	D3/T3	2,025	RO-042-G20
42,4	2,0	geglüht	TC2 (AD2000/W2)	D3/T3	2,025	RO-042-A20
42,4	2,6	ungeglüht	TC1	D3/T3	2,591	RO-042-026
42,4	2,6	ungeglüht	TC2 (AD2000/W2)	D3/T3	2,591	RO-042-U26
42,4	2,6	geglüht	TC1	D3/T3	2,591	RO-042-G26
42,4	2,6	geglüht	TC2 (AD2000/W2)	D3/T3	2,591	RO-042-A26
42,4	3,0	ungeglüht	TC1	D3/T3	2,960	RO-042-030
42,4	3,2	ungeglüht	TC1	D3/T3	3,141	RO-042-032
42,4	3,2	geglüht	TC1	D3/T3	3,186	RO-042-G32
48,3	1,6	ungeglüht	TC1	D3/T3	1,877	RO-048-016
48,3	1,6	geglüht	TC1	D3/T3	1,871	RO-048-G16
48,3	2,0	ungeglüht	TC1	D3/T3	2,319	RO-048-020
48,3	2,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	2,319	RO-048-U20
48,3	2,0	geglüht	TC1	D3/T3	2,319	RO-048-G20
48,3	2,0	geglüht	TC2 (AD2000/W2)	D3/T3	2,319	RO-048-A20
48,3	2,6	ungeglüht	TC1	D3/T3	2,975	RO-048-026
48,3	2,6	ungeglüht	TC2 (AD2000/W2)	D3/T3	2,975	RO-048-U26
48,3	2,6	geglüht	TC1	D3/T3	2,975	RO-048-G26
48,3	2,6	geglüht	TC2 (AD2000/W2)	D3/T3	2,975	RO-048-A26
48,3	3,0	ungeglüht	TC1	D3/T3	3,405	RO-048-030
48,3	3,2	ungeglüht	TC1	D3/T3	3,666	RO-048-032
48,3	3,2	geglüht	TC1	D3/T3	3,614	RO-048-G32
48,3	3,6	ungeglüht	TC1	D3/T3	4,029	RO-048-036
48,3	3,6	geglüht	TC1	D3/T3	4,029	RO-048-G36
48,3	3,6	geglüht	TC2 (AD2000/W2)	D3/T3	4,029	RO-048-A36
48,3	4,0	ungeglüht	TC1	D3/T3	4,437	RO-048-040
60,3	1,6	ungeglüht	TC1	D3/T3	2,352	RO-060-016
60,3	1,6	geglüht	TC1	D3/T3	2,352	RO-060-G16
60,3	2,0	ungeglüht	TC1	D3/T3	2,920	RO-060-020
60,3	2,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	2,920	RO-060-U20
60,3	2,0	geglüht	TC1	D3/T3	2,920	RO-060-G20
60,3	2,0	geglüht	TC2 (AD2000/W2)	D3/T3	2,920	RO-060-A20
60,3	2,6	ungeglüht	TC1	D3/T3	3,757	RO-060-026
60,3	2,6	ungeglüht	TC2 (AD2000/W2)	D3/T3	3,757	RO-060-U26
60,3	2,6	geglüht	TC1	D3/T3	3,757	RO-060-G26
60,3	2,6	geglüht	TC2 (AD2000/W2)	D3/T3	3,757	RO-060-A26
60,3	2,9	ungeglüht	TC1	D3/T3	4,168	RO-060-029
60,3	2,9	geglüht	TC1	D3/T3	4,168	RO-060-G29
60,3	2,9	geglüht	TC2 (AD2000/W2)	D3/T3	4,168	RO-060-A29
60,3	3,0	ungeglüht	TC1	D3/T3	4,304	RO-060-030
60,3	3,0	geglüht	TC2 (AD2000/W2)	D3/T3	4,220	RO-060-A30
60,3	3,2	ungeglüht	TC1	D3/T3	4,575	RO-060-032
60,3	3,2	geglüht	TC1	D3/T3	4,575	RO-060-G32
60,3	3,6	ungeglüht	TC1	D3/T3	5,178	RO-060-036
60,3	3,6	geglüht	TC1	D3/T3	5,111	RO-060-G36
60,3	3,6	geglüht	TC2 (AD2000/W2)	D3/T3	5,111	RO-060-A36
60,3	4,0	ungeglüht	TC1	D3/T3	5,639	RO-060-040
76,1	2,0	ungeglüht	TC1	D3/T3	3,711	RO-076-020
76,1	2,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	3,711	RO-076-U20
76,1	2,0	geglüht	TC1	D3/T3	3,711	RO-076-G20
76,1	2,0	geglüht	TC2 (AD2000/W2)	D3/T3	3,711	RO-076-A20

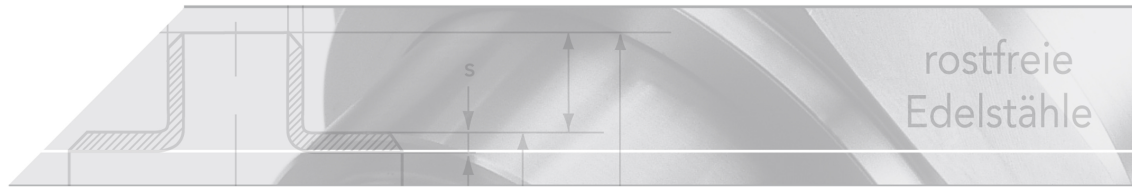
D	s	Ausf	TC	Tol	kg	Art.-Nr.
76,1	2,3	ungeglüht	TC1	D3/T3	4,250	RO-076-023
76,1	2,3	geglüht	TC1	D3/T3	4,250	RO-076-G23
76,1	2,3	geglüht	TC2 (AD2000/W2)	D3/T3	4,250	RO-076-A23
76,1	2,6	ungeglüht	TC1	D3/T3	4,785	RO-076-026
76,1	2,6	ungeglüht	TC2 (AD2000/W2)	D3/T3	4,765	RO-076-U26
76,1	2,6	geglüht	TC1	D3/T3	4,785	RO-076-G26
76,1	2,6	geglüht	TC2 (AD2000/W2)	D3/T3	4,785	RO-076-A26
76,1	2,9	ungeglüht	TC1	D3/T3	5,315	RO-076-029
76,1	2,9	geglüht	TC1	D3/T3	5,315	RO-076-G29
76,1	2,9	geglüht	TC2 (AD2000/W2)	D3/T3	5,315	RO-076-A29
76,1	3,2	ungeglüht	TC1	D3/T3	5,841	RO-076-032
76,1	3,2	geglüht	TC1	D3/T3	5,841	RO-076-G32
76,1	3,6	ungeglüht	TC1	D3/T3	6,535	RO-076-036
76,1	3,6	geglüht	TC1	D3/T3	6,535	RO-076-G36
76,1	3,6	geglüht	TC2 (AD2000/W2)	D3/T3	6,535	RO-076-A36
76,1	4,0	geglüht	TC1	D3/T3	7,222	RO-076-G40
88,9	2,0	ungeglüht	TC1	D3/T3	4,352	RO-088-020
88,9	2,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	4,352	RO-088-U20
88,9	2,0	geglüht	TC1	D3/T3	4,352	RO-088-G20
88,9	2,0	geglüht	TC2 (AD2000/W2)	D3/T3	4,352	RO-088-A20
88,9	2,3	ungeglüht	TC1	D3/T3	4,990	RO-088-023
88,9	2,3	geglüht	TC1	D3/T3	4,987	RO-088-G23
88,9	2,3	geglüht	TC2 (AD2000/W2)	D3/T3	4,987	RO-088-A23
88,9	2,6	ungeglüht	TC1	D3/T3	5,618	RO-088-026
88,9	2,6	ungeglüht	TC2 (AD2000/W2)	D3/T3	5,620	RO-088-U26
88,9	2,6	geglüht	TC1	D3/T3	5,618	RO-088-G26
88,9	2,6	geglüht	TC2 (AD2000/W2)	D3/T3	5,618	RO-088-A26
88,9	2,9	geglüht	TC1	D3/T3	6,245	RO-088-G29
88,9	2,9	geglüht	TC2 (AD2000/W2)	D3/T3	6,245	RO-088-A29
88,9	3,0	ungeglüht	TC1	D3/T3	6,452	RO-088-030
88,9	3,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	6,452	RO-088-U30
88,9	3,0	geglüht	TC1	D3/T3	6,452	RO-088-G30
88,9	3,0	geglüht	TC2 (AD2000/W2)	D3/T3	6,452	RO-088-A30
88,9	3,2	ungeglüht	TC1	D3/T3	6,880	RO-088-032
88,9	3,2	geglüht	TC1	D3/T3	6,890	RO-088-G32
88,9	3,2	geglüht	TC2 (AD2000/W2)	D3/T3	6,876	RO-088-A32
88,9	3,6	ungeglüht	TC1	D3/T3	7,689	RO-088-036
88,9	4,0	ungeglüht	TC1	D3/T3	8,504	RO-088-040
88,9	4,0	geglüht	TC1	D3/T3	8,504	RO-088-G40
88,9	4,0	geglüht	TC2 (AD2000/W2)	D3/T3	8,504	RO-088-A40
114,3	2,0	ungeglüht	TC1	D3/T3	5,624	RO-114-020
114,3	2,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	5,624	RO-114-U20
114,3	2,0	geglüht	TC1	D3/T3	5,642	RO-114-G20
114,3	2,0	geglüht	TC2 (AD2000/W2)	D3/T3	5,624	RO-114-A20
114,3	2,6	ungeglüht	TC1	D3/T3	7,272	RO-114-026
114,3	2,6	ungeglüht	TC2 (AD2000/W2)	D3/T3	7,272	RO-114-U26
114,3	2,6	geglüht	TC1	D3/T3	7,272	RO-114-G26
114,3	2,6	geglüht	TC2 (AD2000/W2)	D3/T3	7,272	RO-114-A26
114,3	2,9	ungeglüht	TC1	D3/T3	8,300	RO-114-029
114,3	3,0	ungeglüht	TC1	D3/T3	8,361	RO-114-030
114,3	3,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	8,361	RO-114-U30
114,3	3,0	geglüht	TC1	D3/T3	8,496	RO-114-G30
114,3	3,0	geglüht	TC2 (AD2000/W2)	D3/T3	8,361	RO-114-A30
114,3	3,2	ungeglüht	TC1	D3/T3	8,902	RO-114-032
114,3	3,2	geglüht	TC1	D3/T3	8,902	RO-114-G32
114,3	3,6	ungeglüht	TC1	D3/T3	9,979	RO-114-036
114,3	3,6	geglüht	TC1	D3/T3	9,979	RO-114-G36
114,3	3,6	geglüht	TC2 (AD2000/W2)	D3/T3	9,979	RO-114-A36

D	s	Ausf	TC	Tol	kg	Art.-Nr.
114,3	4,0	ungeglüht	TC1	D3/T3	11,048	RO-114-040
114,3	4,0	geglüht	TC1	D3/T3	11,048	RO-114-G40
114,3	5,0	ungeglüht	TC1	D3/T3	13,720	RO-114-050
114,3	5,0	geglüht	TC2 (AD2000/W2)	D3/T3	13,720	RO-114-A50
139,7	2,0	ungeglüht	TC1	D3/T3	6,900	RO-139-020
139,7	2,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	6,896	RO-139-U20
139,7	2,6	ungeglüht	TC1	D3/T3	8,962	RO-139-026
139,7	2,6	ungeglüht	TC2 (AD2000/W2)	D3/T3	8,962	RO-139-U26
139,7	2,6	geglüht	TC2 (AD2000/W2)	D3/T3	8,962	RO-139-A26
139,7	3,0	ungeglüht	TC1	D3/T3	10,269	RO-139-030
139,7	3,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	10,269	RO-139-U30
139,7	4,0	ungeglüht	TC1	D3/T3	13,592	RO-139-040
168,3	2,0	ungeglüht	TC1	D3/T3	8,328	RO-168-020
168,3	2,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	8,328	RO-168-U20
168,3	2,6	ungeglüht	TC1	D3/T3	10,788	RO-168-026
168,3	2,6	ungeglüht	TC2 (AD2000/W2)	D3/T3	10,788	RO-168-U26
168,3	2,6	geglüht	TC2 (AD2000/W2)	D3/T3	10,788	RO-168-A26
168,3	3,0	ungeglüht	TC1	D3/T3	12,417	RO-168-030
168,3	3,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	12,417	RO-168-U30
168,3	4,0	ungeglüht	TC1	D3/T3	16,456	RO-168-040
168,3	4,0	ungeglüht	TC2 (AD2000/W2)	D3/T3	16,456	RO-168-U40
168,3	5,0	ungeglüht	TC1	D3/T3	20,570	RO-168-050
219,1	2,0	ungeglüht	TC1	D2/T3	10,872	RO-219-020
219,1	2,0	ungeglüht	TC2 (AD2000/W2)	D2/T3	10,907	RO-219-U20
219,1	2,6	ungeglüht	TC1	D2/T3	14,140	RO-219-026
219,1	2,6	ungeglüht	TC2 (AD2000/W2)	D2/T3	14,140	RO-219-U26
219,1	3,0	ungeglüht	TC1	D2/T3	16,333	RO-219-030
219,1	3,0	ungeglüht	TC2 (AD2000/W2)	D2/T3	16,233	RO-219-U30
219,1	4,0	ungeglüht	TC1	D2/T3	21,554	RO-219-040
219,1	4,0	ungeglüht	TC2 (AD2000/W2)	D2/T3	21,554	RO-219-U40
219,1	5,0	ungeglüht	TC1	D2/T3	26,805	RO-219-050
273,0	2,0	ungeglüht	TC1	D2/T3	13,570	RO-273-020
273,0	2,6	ungeglüht	TC1	D2/T3	17,600	RO-273-026
273,0	2,6	ungeglüht	TC2 (AD2000/W2)	D2/T3	17,600	RO-273-U26
273,0	3,0	ungeglüht	TC1	D2/T3	20,290	RO-273-030
273,0	3,0	ungeglüht	TC2 (AD2000/W2)	D2/T3	20,290	RO-273-U30
273,0	4,0	ungeglüht	TC1	D2/T3	26,943	RO-273-040
273,0	5,0	ungeglüht	TC1	D2/T3	33,600	RO-273-050
323,9	2,6	ungeglüht	TC1	D2/T3	20,920	RO-323-026
323,9	3,0	ungeglüht	TC1	D2/T3	24,180	RO-323-030
323,9	3,0	ungeglüht	TC2 (AD2000/W2)	D2/T3	24,180	RO-323-U30
323,9	4,0	ungeglüht	TC1	D2/T3	32,042	RO-323-040
323,9	5,0	ungeglüht	TC1	D2/T3	39,926	RO-323-050
355,6	3,0	ungeglüht	TC1	D2/T3	26,600	RO-355-030
355,6	3,0	ungeglüht	TC2 (AD2000/W2)	D2/T3	26,600	RO-355-U30
355,6	4,0	ungeglüht	TC1	D2/T3	35,216	RO-355-040
406,4	3,0	ungeglüht	TC1	D2/T3	30,500	RO-406-030
406,4	3,0	ungeglüht	TC2 (AD2000/W2)	D2/T3	30,400	RO-406-U30
406,4	4,0	ungeglüht	TC1	D2/T3	40,500	RO-406-040
406,4	5,0	ungeglüht	TC1	D2/T3	50,250	RO-406-050
457,2	3,0	ungeglüht	TC1	D2/T3	34,300	RO-457-030
457,2	4,0	ungeglüht	TC1	D2/T3	45,510	RO-457-040
508,0	3,0	ungeglüht	TC1	D2/T3	37,936	RO-508-030
508,0	4,0	ungeglüht	TC1	D2/T3	50,400	RO-508-040
508,0	5,0	ungeglüht	TC1	D2/T3	63,300	RO-508-050
609,6	3,0	ungeglüht	TC1	D2/T3	45,720	RO-609-030
609,6	4,0	ungeglüht	TC1	D2/T3	60,660	RO-609-040
609,6	5,0	ungeglüht	TC1	D2/T3	75,938	RO-609-050

D	s	Ausf	TC	Tol	kg	Art.-Nr.
711,2	4,0	ungeglüht	TC1	D2/T3	71,300	R0-711-040
812,8	4,0	ungeglüht	TC1	D2/T3	81,260	R0-812-040

available material: 1.4301, 1.4307, 1.4404, 1.4541, 1.4571

Installation supplies > tubes > round > welded > ISO-dimensions



Longitudinal seam welded stainless steel tube acc. to DIN EN 10217-7

in manufacturing lengths of 6m

Tolerances (EN ISO 1127)

Outer diameter	Wall thickness
D1 = +/- 1,50%, min +/- 0,75 mm	T1 = +/- 15,0%, min +/- 0,60 mm
D2 = +/- 1,00%, min +/- 0,50 mm	T2 = +/- 12,5%, min +/- 0,40 mm
D3 = +/- 0,75%, min +/- 0,30 mm	T3 = +/- 10,0%, min +/- 0,20 mm
D4 = +/- 0,50%, min +/- 0,10 mm	T4 = +/- 7,50%, min +/- 0,15 mm

Comparison of materials

M.-No.	DIN	AISI
1.4301	x5CrNi 18 10	304
1.4307	x2CrNi 19 9	304 L
1.4541	x6CrNiTi 18 10	321
1.4571	x6CrNiMoTi 17 12 2	316 TI
1.4404	x2CrNiMo 17 13 2	316 L
1.4828	x15CrNiSi 20-12	309

Analyses (DIN 17440)

W.-No.	C	Cr	Ni	Mo	...
1.4301	0,07	17,0 - 19,5	8,0 - 10,5	-	-
1.4307	0,03	17,5 - 19,5	8,0 - 10,0	-	-
1.4541	0,08	17,0 - 19,0	9,0 - 12,0	-	Ti 5 x % C
1.4571	0,08	16,5 - 18,5	10,5 - 13,5	2,0 - 2,5	Ti 5 x % C
1.4404	0,03	16,5 - 18,5	11,0 - 13,5	2,0 - 2,5	-
1.4435	0,03	16,5 - 18,5	11,0 - 13,5	2,0 - 2,5	-
1.4539	0,02	19,0 - 21,0	24,0 - 26,0	4,0 - 5,0	-
1.4828	0,02	19,0 - 21,0	11,0 - 13,0	-	Si 1,5 -2,0
1.4841	0,02	24,0 - 26,0	19,0 - 22,0	-	Si 1,5 -2,0

C (Carbon) max. %

Cr (Chrome) %

Ni (Nickel) %

Mo (Molybdenum) %

Ti (Titanium) min. %

Si (Silicon) %

Comparison DIN <> EN

DIN (old)	EN (new)	Type of design
17455	10296-2	without special requirements
17457	10217-7	for pressure stresses
PK1	TC1	Test Class 1 (without AD2000/W2)
PK2	TC2	Test Class 2 (with AD2000/W2)
d0	W0	not pickled, Hot-rolled strip
d0g	W0b	"-", "- ", smooth inside seam
d1	W1	pickled, Hot-rolled strip
d1g	W1b	"-", "- ", smooth inside seam
d2	W1A	heat-treated, pickled, Hot-rolled
d2g	W1Ab	"-", "- ", "- ", smooth inside seam
d3	W1R	bright annealed, made of hot-roll
d3g	W1Rb	"-", "- ", smooth inside seam
k0	W0	not pickled, made of cold-rolled
k0g	W0b	"-", "- ", smooth inside seam
k1	W2	pickled, made of cold-rolled strip
k1g	W2b	"-", "- ", smooth inside seam
k2	W2A	heat-treated, pickled, cold-rolled
k2g	W2Ab	"-", "- ", "- ", smooth inside seam
k3	W2R	bright annealed,m.o. c.-rol. strip
k3g	W2Rb	"-", "- ", smooth inside seam
11	WCA	heat-treated, min.20% cold-forming
12	WCR	"-", "- ", smooth inside seam
o	WG	ground
p	WP	polished
g	b	smoothed seam
SEP1914	10246-3	Inline eddy current testing
SEP1925	10246-2	Offline eddy current testing

DIN (old)	EN (new)	Surface
17457	10217-7	metallic clean
d0	W0	metallic clean
d0g	W0b	metallic clean
d1	W1	metallic clean
d1g	W1b	metallic clean
d2	W1A	metallic clean
d2g	W1Ab	metallic clean
d3	W1R	metallic clean
d3g	W1Rb	metallic clean
k0	W0	met. clean, smoother than d0
k0g	W0b	met. clean, smoother than d0
k1	W2	met. clean, smoother than d1-d3
k1g	W2b	bare metal, smoother than d1-d3
k2	W2A	bare metal, smoother than d1-d3
k2g	W2Ab	bare metal, smoother than d1-d3
k3	W2R	bare metal, smoother than d1-d3
k3g	W2Rb	bare metal, smoother than d1-d3
11	WCA	bare metal, seam barely noticeable
12	WCR	bare metal, seam barely noticeable
o	WG	matching grain or Ra
p	WP	match the quality and type