

# HORA Schweißerzeugnisse (WPQ)

Stand: 26.04.2011

Welder:

- Jürgen Grenzius
- Frank Kracht
- Alex Scharf
- Alfred Weissert
- Waldemar Emkrund
- Ulrich Mickan
- Günther Rusch
- Ingo Retzlaff

Leihschweißer:

- Norbert Eckert
- Sergei Moschcow
- Jozsef Schmidt
- Ulrich Wabnitz



Welder no.	Memory	WPQ no.	TÜV Certificate				Material group 1 EN 287-1 1997-08	Material group 1 CR ISO 15608	Material 1	Material group 1 EN 287-1 1997-08	Material group 1 CR ISO 15608	Material 2	Filler metal 141 [GTAW]	Filler metal 111 [SAW]	Z-WF	Thickness Testcoupon t [mm]	Diam. Test D <sub>3</sub> [mm]	Pos.	Schweißnahtart	141 [GTAW] Scope t [mm]	141 [GTAW] Scope D <sub>3</sub> [mm]	111 [SAW] Scope t [mm]	141/111 Scope t [mm]	141/111 Scope D <sub>3</sub> [mm]	Date						
			Process	P	EW	FW																									
HR 1 Grenzius	1	1-55-1	5535	P	9125	-	-	90-4	141 111	T	BW	5.1	G17CrMo5-5	5.1	13CrMo4-5	DCMS-IG	Fox DCMS-Kb	wm/B	141: 4,0 111: 10	128	H-L045	ss	nb/mb	3,0 - 8,0	≥ 64	≥ 5	≥ 3	≥ 64	15.05.2009		
HR 1 Grenzius	2	1-66-1	5535	P	9021	-	-	10	141 111	T	BW	6.4	X10CrMoVNb9-1	6.4	X10CrMoVNb9-1	C 9 MV-IG	Fox C9 MV	wm/B	141: 2,9 111: 12,1	55	H-L045	ss	nb/mb	2,9 - 5,8	≥ 27,5	≥ 5	≥ 3	≥ 27,5	05.01.2011		
HR 1 Grenzius	3	1-88-1	5535	P	9023	-	-	10	141 111	T	BW	8.1	X6CrNiMoTi17-12-2	8.1	GX5CrNiMo19-11	SAS 4-IG	Fox SAS 4	wm/B	141: 4,0 111: 8	174	H-L045	ss	nb/mb	3,0 - 8,0	≥ 87	3,0 - 16,0	≥ 3	≥ 87	09.09.2010		
HR 1 Grenzius	5	7	5635	P	0089	2	P	009	141 111	T	BW	W02	6.4	X10CrMoVNb9-1	W02	6.4	X10CrMoVNb9-1	C 9 MV-IG	Fox C9 MV	wm/B	6	50	PA	ss	nb	-	-	-	3 - 12	25 - 100	07.12.2002
HR 1 Grenzius	6	8	5635	P	0089	2	P	010	141 111	T	BW	W02	6.4	X10CrMoVNb9-1	W02	6.4	X10CrMoVNb9-1	C 9 MV-IG	Fox C9 MV	wm/B	13	154	PA	ss	nb	-	-	-	≥ 5	≥ 77	07.12.2002
HR 1 Grenzius	7	19	5635	P	0089	2	P	008	141 111	T	BW	W11	8.1	X6CrNiMoTi17-12-2	W11	8.1	X6CrNiMoTi17-12-2	SAS 4-A-IG	Fox SAS 4-A	wm/R	13	154	PA	ss	nb	-	-	-	≥ 5	≥ 77	07.12.2002
HR 2 Kracht	1	2-66-2	5535	P	9125	-	-	90-5	141 111	T	BW	6.4	X10CrMoVNb9-1	6.4	X10CrMoVNb9-1	C 9 MV-IG	Fox C9 MV	wm/B	141: 4,0 111: 21,5	115	PA	ss	nb	3 - 8	≥ 57,5	≥ 5	≥ 3	≥ 57,5	29.05.2009		
HR 2 Kracht	2	2-66-1	5535	P	9069	-	-	1	141	T	BW	6.4	X10CrMoVNb9-1	6.4	X10CrMoVNb9-1	C 9 MV-IG	-	wm	141:10,0	70	H-L045	ss	nb	3 - 20	≥ 35	-	-	-	-	13.03.2009	
HR 2 Kracht	3	2-88-2	5535	P	9029	-	-	10	141	T	BW	8.1	X6CrNiMoTi17-12-2	8.1	X6CrNiMoTi17-12-2	SAS 4-IG	-	wm	5	60,3	H-L045	ss	nb	3 - 10	≥ 30,15	-	-	-	-	23.03.2010	
HR 2 Kracht	5	8	5635	P	0089	2	P	005	141 111	T	BW	W02	6.4	X10CrMoVNb9-1	W02	6.4	X10CrMoVNb9-1	C 9 MV-IG	Fox C9 MV	wm/B	6	50	PA	ss	nb	-	-	-	3 - 12	25 - 100	07.12.2002
HR 2 Kracht	6	9	5635	P	0089	2	P	006	141 111	T	BW	W02	6.4	X10CrMoVNb9-1	W02	6.4	X10CrMoVNb9-1	C 9 MV-IG	Fox C9 MV	wm/B	13	154	PA	ss	nb	-	-	-	≥ 5	≥ 77	07.12.2002
HR 3 Scharf	1	3-55-1	5535	P	9367	-	-	80	141/111	T	BW	5.2	11CrMo9-10	5.2	11CrMo9-10	CM 2-IG	Fox CM 2 Kb	#	141: 5 111: 8	120	H-L045	ss	nb/mb	3 - 10	≥ 60	≥ 5	≥ 3	≥ 60	29.08.2008		
HR 3 Scharf	2	3-55-2	5535	P	9069	-	-	4	141	T	BW	5.2	10CrMo9-10	5.2	10CrMo9-10	CM 2-IG	-	wm	141:10,5	55	H-L045	ss	nb	3 - 21	≥ 27,5	-	-	-	-	24.03.2009	
HR 3 Scharf	3	3-88-1	5535	P	9277	-	-	90-03	141/111	T	BW	8.1	X6CrNiMoTi17-12-2	8.1	GX5CrNiMo19-11	SAS 4-IG	Fox SAS 4	wm/B	141: 5 111: 7	174	H-L045	ss	nb/mb	3 - 10	≥ 87	3 - 14	≥ 3	≥ 87	02.08.2010		
HR 3 Scharf	4	3-81-1	5535	P	9025	-	-	10	141	T	BW	8.1	X6CrNiMoTi17-12-2	1.1	16Mo3	UTP A 068 HH	-	wm	141: 6	50	H-L045	ss	nb	3 - 12	≥ 25	-	-	-	-	09.09.2010	
HR 3 Scharf	5	3-66-1	5535	P	9026	-	-	10	141 111	T	BW	W02	6.4	X10CrWMoVNb9-2	W02	6.4	X10CrWMoVNb9-2	P 92-IG	Fox P92	wm/B	141: 4 111: 16,5	100	H-L045	ss	nb/mb	3 - 8	≥ 50	≥ 5,0	≥ 3	≥ 50	09.01.2011



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(HR 1)	Jürgen Grenzius	(HR 5)	Waldemar Emkrund
(HR 2)	Frank Kracht	(HR 6)	Ulrich Mickan
(HR 3)	Alex Scharf	(HR 7)	Günther Rusch
(HR 4)	Alfred Weissert	(HR 8)	Ingo Retzlaff

Leihschweißer:

(HR 9)	Norbert Eckert
(HR 11)	Sergei Moschkow
(HR 20)	Jozsef Schmidt
(HR 21)	Ulrich Wabnitz



Welder no.	Memory	WPQ no.	TÜV Certificate										Material 1	Material group 1 EN 287-1 CR ISO 15608	Material 2	Filler metal 141 [GTAW]	Filler metal 111 [SAW]	Thickness Testspecom t [mm]	Diam. Test D <sub>z</sub> [mm]	Pos.	Schweißarten	141 [GTAW] Scope t [mm]	141 [GTAW] Scope D <sub>a</sub> [mm]	111 [SAW] Scope t [mm]	141/111 Scope t [mm]	141/111 Scope D <sub>a</sub> [mm]	Date				
			Process	P	EW	FW	Material group 1 EN 287-1 1997-08	Material group 1 CR ISO 15608	Material group 1 EN 287-1 1997-08	Material group 1 CR ISO 15608																					
HR 4 Weisert	1	4-66-1	5535	P	90			69	141/111	T	EW		6.4	X10CrWMoVNb9-2		6.4	X10CrWMoVNb9-2	P 92-IG	Fox P 92	wm/B	141: 3 111: 10	120	PA	ss	nb / mb	3 - 6	≥ 60	3 - 20	≥ 3	≥ 60	30.03.2010
HR 4 Weisert	5	4-81-1	5635	P	0117	8	P	001	141/111	T	EW		8.1	X6CrNiMoTi17-12-2		1.1	16Mo3	UTP a 068 HH	Fox NIBAS 70/20	wm/B	141: 3 111: 10	120	H-L045	ss	nb / mb	3 - 6	≥ 60	3 - 20	≥ 3	≥ 60	07.07.2008
HR 4 Weisert	6	12	5635	P	0089	2	P	001	141/111	T	EW	W11	8.1	X6CrNiMoTi17-12-2	W11	8.1	X6CrNiMoTi17-12-2	SAS 4-IG	Fox SAS 4-A	wm/R	6	50	PA	ss	nb / mb	-	-	-	3 - 12	25 - 100	06.12.2002
HR 4 Weisert	7	7	5311	P	0001	2	P	001	141/111	T	EW	W02	6.4	X10CrMoVNb9-1	W02	6.4	X10CrMoVNb9-1	C9MV-IG	Fox C9 MV	wm/B	141: 2 111: 15	168,3	PA	ss	nb / mb	2 - 4	≥ 84	≥ 5	≥ 2	≥ 84	18.02.2002
HR 5 Emkrund	1	5-66-1	5535	P	9125	-	-	90-1	141/111	T	EW		6.4	X10CrMoVNb9-1		6.4	X10CrMoVNb9-1	C9MV-IG	Fox C9 MV	wm/B	141: 4 111: 21,5	115	PA	ss	nb / mb	3 - 8	≥ 57,5	≥ 5	≥ 3	≥ 57,5	26.05.2009
HR 5 Emkrund	2	5-66-2	5535	P	9125	-	-	90	141	T	EW		6.4	X10CrMoVNb9-1		6.4	X10CrMoVNb9-1	C9MV-IG	-	wm	8,5	42	PA	ss	nb	≥ 5	≥ 21	-	-	-	03.07.2009
HR 5 Emkrund	5	5-55-1	5635	P	0104	8	P	001	141/111	T	EW		5.2	11CrMo9-10		5.2	11CrMo9-10	CM 2-IG	Fox CM 2 Kb	wm/B	141: 5 111: 25	130	PA	ss	nb / mb	3 - 10	≥ 65	≥ 5	≥ 3	≥ 65	05.06.2008
HR 6 Mickan	1	6-66-2	5535	P	9125	-	-	90-2	141/111	T	EW		6.4	X10CrMoVNb9-1		6.4	X10CrMoVNb9-1	C9MV-IG	Fox C9 MV	wm/B	141: 4 111: 15	95	H-L045	ss	nb/mb	3 - 8	≥ 47,5	≥ 5	≥ 3	≥ 47,5	14.05.2009
HR 6 Mickan	2	6-55-1	5535	P	9069	-	-	2	141	T	EW		5.2	10CrMo9-10		5.2	11CrMo9-10	CM 2-IG	-	wm	10,5	55	H-L045	ss	nb	3 - 21	≥ 27,5	-	-	-	23.03.2009
HR 6 Mickan	5	0050	6736	P	0060	6	0	050	141	T	EW		5.2	10CrMo9-10		5.2	10CrMo9-10	W CrMo2Si	-	s	2 6,3	17,2 48,3	H-L045	ss	nb	2 - 12,6	≥ 17,2	-	-	-	27.01.2006
HR 6 Mickan	6	0051	6736	P	0060	6	0	051	141/111	T	EW		5.2	10CrMo9-10		5.2	10CrMo9-10	W CrMo2Si	E CrMo 2 B 20	s/B	16	168,3	H-L045	ss	nb/mb	3 - 6	≥ 84,15	≥ 5	≥ 3	≥ 84,15	27.01.2006
HR 7 Rusch	1	7-66-1	5535	P	9125	-	-	90-3	141/111	T	EW		6.4	X10CrMoVNb9-1		6.4	X10CrMoVNb9-1	C9MV-IG	Fox C9 MV	wm/B	141: 4 111: 15	95	H-L045	ss	nb/mb	3 - 8	≥ 47,5	≥ 5	≥ 3	≥ 47,5	15.05.2009
HR 7 Rusch	5	001	0036	07	03	0	0	1	141/111	T	EW		5.2	10CrMo9-10		5.2	10CrMo9-10	Union /CrMo9-10	Fox CM 2 Kb	s/B	141: 3 111: 10	168	H-L045	ss	nb	3 - 6	≥ 84	3 - 20	≥ 5	≥ 84,0	09.03.2007
HR 7 Rusch	6	002	0036	07	03	0	0	2	141	T	EW		5.1	13CrMo4-5		5.1	13CrMo4-5	W CrMo 1 Si	-	s	6,3	168,3	H-L045	ss	nb	3 - 12,6	≥ 84,1	-	-	-	09.03.2007
HR 7 Rusch	7	003	0036	07	03	0	0	3	141	T	EW		5.1	13CrMo4-5		5.1	13CrMo4-5	W CrMo 1 Si	-	s	3,2	60,3	H-L045	ss	nb	3 - 6,4	≥ 30,1	-	-	-	09.03.2007
HR 7 Rusch	8	004	0036	07	03	0	0	4	141	T	EW		5.1	13CrMo4-5		5.1	13CrMo4-5	W CrMo2Si	-	s	2	17,2	H-L045	ss	nb	2 - 4	17,2 - 34,4	-	-	-	09.03.2007



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			Process	P	EW	FW																								
HR 8 Retzlaff	1	8-65-1	5536	P	9027		10	141/111	T	BW		6.4	X10CrMoVNb9-1	5.2	11CRMo9-10	C-9 MV-IG	Fox C 9 MV-Kb	wm/B	141: 5 111: 25	510	H-L045	ss	nb/mb	3 - 10	≥ 255	≥ 5	≥ 3	≥ 255	14.07.2010	
HR 8 Retzlaff	2	8-55-1	5535	P	9069	-	3	141	T	BW		5.2	10CrMo9-10	5.2	10CrMo9-10	CM 2-IG	-	wm	10,5	55	H-L045	ss	nb	3 - 21	≥ 27,5	-	-	-	18.03.2009	
HR 8 Retzlaff	3	8-66-1	5535	P	9024		10	141/111	T	BW		6.4	X10CrMoVNb9-1	6.4	X10CrMoVNb9-1	C-9 MV-IG	Fox C 9 MV-Kb	wm/B	141: 4 111: 11	80	H-L045	ss	nb/mb	3 - 8	≥ 40	3,0 - 22,0	≥ 3	≥ 40	09.09.2010	
HR 8 Retzlaff	5	1	5635	P	0131	5	P	001	141/111	T	BW		6.4	X10CrMoVNb9-1	6.4	X10CrMoVNb9-1	W CrMo91	E CrMo91 B 4 2H5	wm/B	5,0	48,3	PC	ss	nb/mb	-	-	-	3 - 10	≥ 25	01.10.2005
HR 8 Retzlaff	6	2	5635	P	0034	6	P	001	141/111	T	BW		6.4	X10CrMoVNb9-1	5.2	10CrMo9-10	C 9 MV-IG	Fox C 9 MV-Kb	wm/B	141: 5 111: 26	312	PA	ss	nb/mb	3 - 10	≥ 156	≥ 5	≥ 3	≥ 156	07.03.2006
HR 8 Retzlaff	7	4	5635	P	0011	6	P	001	141/111	T	BW		4.2	15NiCuMoNb5	4.2	15NiCuMoNb5	W MoSi	E MoB B 42 H5	wm/B	24	136	PA	ss	nb/mb	-	-	-	≥ 5	≥ 68	23.01.2006
HR 9 Eckert	1	9-55-1	5536	P	9022		10	141/111	T	BW		5.2	11CrMo9-10	5.2	11CrMo9-10	CM 2-IG	Fox CM 2-Kb	wm/B	141: 4 111: 13,15	114,3	H-L045	ss	nb/mb	3 - 8	≥ 57,15	≥ 5	≥ 3	≥ 57,15	27.05.2010	
HR 9 Eckert	2		1002	P	3099	9	S	0048	141/111	T	BW		6.4	X10CrMoVNb9-1	6.4	X10CrMoVNb9-1	W CrMo 9 1	E CrMo91 B 4 2 H5	wm/B	141: 3 111: 13	273	PF/PC	ss	nb/mb	3 - 6	≥ 136,5	≥ 5,0	≥ 3,0	≥ 136,5	01.09.2009
HR 9 Eckert	2		1002	P	3098	9	S	0048	141	T	BW		6.4	X10CrMoVNb9-1	6.4	X10CrMoVNb9-1	W CrMo 9 1	-	wm	7	44,5	PF/PC	ss	nb	3 - 14	≥ 25	-	-	-	01.09.2009
HR 9 Eckert	2		1002	P	3760	9	S	0048	141/111	T	BW		5.2	10CrMo9-10	5.2	10CrMo9-10	W CrMo 2 Si	E CrMo2 B 4 2 H5	wm/B	3	13	PF/PC	ss	nb/mb	3 - 6	≥ 84	≥ 5,0	≥ 3,0	≥ 84	20.11.2009
HR 9 Eckert	2		1002	P	3761	9	S	0048	141	T	BW		5.1	13CrMo4-5	5.1	13CrMo4-5	W CrMo 1 Si	-	wm	141: 2 141: 3	17 60	PF/PC	ss	nb	2 - 6	≥ 17	-	-	-	20.11.2009
HR 9 Eckert	2		1002	P	3766	9	S	0048	141	T	BW		5.2	10CrMo9-10	5.2	10CrMo9-10	W CrMo 2 Si	-	wm	4	168	PF/PC	ss	nb	3 - 8	≥ 84	-	-	-	20.11.2009
HR 9 Eckert	2		1002	P	3770	9	S	0048	111	P	FW		1	P295GH	1	P295GH	-	E 42 5 4 2 H5		10	-	PD	mf	-	-	≥ 3,0	-	PA ≥ 150 PD/PF ≥ 500	20.11.2009	
HR11 Moschkow	1	11-55-1	5535	P	9277	-	90-01	141/111	T	BW		5.1	13CrMo4-5	5.1	13CrMo4-5	DCMS-IG	DCMS-Kb	wm/B	25,4	406,4	H-L045	ss	nb/mb	3 - 8	≥ 203,2	≥ 5,0	≥ 3,0	≥ 203,2	30.10.2009	
HR11 Moschkow	2	11-55-2	5535	P	9028		10	141/111	T	BW		5.2	10CrMo9-10	5.2	10CrMo9-10	W CrMo 2 Si	E CrMo2 B 4 2 H5	wm/B	141: 5 111: 9	68	H-L045	ss	nb/mb	3 - 10	≥ 34	≥ 5,0	≥ 3,0	≥ 34	14.07.2010	
HR11 Moschkow	3		1002	P	3278	9	S	0048	141	T	BW		5.2	10CrMo9-10	5.2	10CrMo9-10	S / W CrMo 2 Si	-	wm	141: 2 141: 6,3	17,2 48,3	H-L045	ss	nb	2 - 12,6	≥ 17,2	-	-	-	02.10.2009



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Welder:

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| (HR 1) | Jürgen Grenzius | (HR 5) | Waldemar Emkrund |
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| (HR 3) | Alex Scharf     | (HR 7) | Günther Rusch    |
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Leihschweißer:

- |         |                 |
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			P	T	EW	FW	141/111	T												EW	FW	ss								nb	nb/mb
HR11 <small>Moschkow</small>	4		1002	P	3279	9	S	0048	141	T	EW		8.1	X6CrNiTi18-10		8.1	X6CrNiTi18-10	S / W 19 9 Nb Si	-	wm	141: 2 141: 6,3	17,2 48,3	H-L045	ss	nb	2 - 12,6	≥ 17,2	-	-	-	02.10.2009
HR 20 <small>Schmidt</small>	1		1002	Z	0480	0	0	S-006	141/111	T	EW		5.2	10CrMo9-10		5.2	10CrMo9-10	W CrMo 2 Si	E CrMo 2 B 4 2 H5	SB	141: 3 111: 13	168	PF/PC	ss	nb/mb	3 - 6	≥ 84	≥ 5,0	≥ 3,0	≥ 84	12.02.2010
HR 20 <small>Schmidt</small>	2		1002	Z	0480	0	0	S-007	141	T	EW		5.1	13CrMo4-5		5.1	13CrMo4-5	W CrMo 1 Si	-	wm	141: 2 141: 3	17 60	PF/PC	ss	nb	2 - 6	≥ 17	-	-	-	12.02.2010
HR 20 <small>Schmidt</small>	3		1002	Z	0480	0	0	S-005	141	T	EW		5.2	10CrMo9-10		5.2	10CrMo9-10	W CrMo 2 Si	-	wm	4	168	PF/PC	ss	nb	2 - 8	≥ 84	-	-	-	12.02.2010
HR 20 <small>Schmidt</small>	4		1002	Z	0480	0	0	S-008	141	T	EW		8.1	X 6CrNiTi18-10		8.1	X 6CrNiTi18-10	W 19 9 Nb Si	-	wm	141: 3 141: 6	60 168	PF/PC	ss	nb	3 - 12	≥ 30	-	-	-	12.02.2010
HR 20 <small>Schmidt</small>	9		1002	Z	0480	0	0	S-050	141	T	EW		8.1	X 2CrNiMo18-14-3		8.1	X 2CrNiMo18-14-3	W 25 22 2 NL	-	wm	12,5	168	PF/PC	ss	nb	≥ 5	≥ 84	-	-	-	12.03.2010

