

Inspection certificate 3.1, EN 10204:2004

Delivery	Weight	Grade	Standard
FLAT BOTTOM RAILS P65, DRILLED ACC. TO STANDARD PN TŽ 42 0204 CATEGORY OF RAILS: DT350 P65 mm 12,500 m +4 -4	21897 kg	K76CHF	PN TŽ 42 0204

Chemical composition [%]

Heat No.	Weight [kg]										
T18931	0	C	Mn	Si	P	S	Cu	Cr	Ni	Al	
BO-cc blooms		0.81	1.04	0.56	0.016	0.006	0.03	0.66	0.03	0.003	
		O	H	N	Mo	W	V	Ti	Co	As	
		0.0005	1.13 ppm	0.0034	0.008	0.01	0.047	0.0026	0.006	0.002	
		Sn	B	Sb	Pb	Nb					
		0.005	0.0005	0.002	0.0010	0.001					
T18933	0	C	Mn	Si	P	S	Cu	Cr	Ni	Al	
BO-cc blooms		0.80	1.04	0.56	0.015	0.008	0.02	0.65	0.02	0.003	
		O	H	N	Mo	W	V	Ti	Co	As	
		0.0004	1.12 ppm	0.0032	0.014	0.01	0.051	0.0023	0.006	0.002	
		Sn	B	Sb	Pb	Nb					
		0.005	0.0005	0.001	0.0010	0.001					
T18935	0	C	Mn	Si	P	S	Cu	Cr	Ni	Al	
BO-cc blooms		0.80	1.05	0.56	0.015	0.010	0.03	0.65	0.03	0.003	
		O	H	N	Mo	W	V	Ti	Co	As	
		0.0007	1.13 ppm	0.0031	0.014	0.01	0.046	0.0022	0.006	0.002	
		Sn	B	Sb	Pb	Nb					
		0.005	0.0005	0.002	0.0010	0.001					
T18944	0	C	Mn	Si	P	S	Cu	Cr	Ni	Al	
BO-cc blooms		0.81	1.04	0.55	0.014	0.009	0.03	0.64	0.04	0.002	
		O	H	N	Mo	W	V	Ti	Co	As	
		0.0005	1.12 ppm	0.0028	0.019	0.01	0.049	0.0021	0.006	0.002	
		Sn	B	Sb	Pb	Nb					
		0.005	0.0005	0.001	0.0010	0.001					
T18945	0	C	Mn	Si	P	S	Cu	Cr	Ni	Al	
BO-cc blooms		0.80	1.03	0.55	0.014	0.009	0.03	0.66	0.03	0.002	
		O	H	N	Mo	W	V	Ti	Co	As	
		0.0008	1.12 ppm	0.0044	0.010	0.01	0.048	0.0018	0.005	0.002	
		Sn	B	Sb	Pb	Nb					
		0.004	0.0005	0.002	0.0010	0.001					



Heat No.	Weight [kg]										
T18958 BO-cc blooms	0	C	Mn	Si	P	S	Cu	Cr	Ni	Al	
		0.81	1.02	0.54	0.015	0.008	0.05	0.65	0.03	0.003	
		O	H	N	Mo	W	V	Ti	Co	As	
		0.0009	1.13 ppm	0.0030	0.010	0.01	0.044	0.0024	0.006	0.002	
		Sn	B	Sb	Pb	Nb					
		0.005	0.0006	0.002	0.0010	0.001					
T18965 BO-cc blooms	0	C	Mn	Si	P	S	Cu	Cr	Ni	Al	
		0.81	1.03	0.55	0.014	0.008	0.05	0.65	0.04	0.003	
		O	H	N	Mo	W	V	Ti	Co	As	
		0.0009	1.13 ppm	0.0031	0.014	0.01	0.049	0.0020	0.006	0.003	
		Sn	B	Sb	Pb	Nb					
		0.005	0.0004	0.001	0.0010	0.001					
T18967 BO-cc blooms	0	C	Mn	Si	P	S	Cu	Cr	Ni	Al	
		0.80	1.03	0.54	0.015	0.010	0.06	0.64	0.03	0.003	
		O	H	N	Mo	W	V	Ti	Co	As	
		0.0004	1.12 ppm	0.0036	0.008	0.01	0.044	0.0019	0.006	0.003	
		Sn	B	Sb	Pb	Nb					
		0.006	0.0005	0.002	0.0010	0.001					
T18969 BO-cc blooms	0	C	Mn	Si	P	S	Cu	Cr	Ni	Al	
		0.79	1.04	0.55	0.014	0.012	0.03	0.65	0.05	0.003	
		O	H	N	Mo	W	V	Ti	Co	As	
		0.0005	1.11 ppm	0.0042	0.021	0.01	0.045	0.0020	0.006	0.002	
		Sn	B	Sb	Pb	Nb					
		0.005	0.0005	0.002	0.0010	0.001					
T52256 BO-cc blooms	0	C	Mn	Si	P	S	Cu	Cr	Ni	Al	
		0.80	1.05	0.55	0.016	0.006	0.04	0.67	0.04	0.003	
		O	H	N	Mo	W	V	Ti	Co	As	
		0.0004	1.12 ppm	0.0049	0.014	0.01	0.052	0.0022	0.006	0.003	
		Sn	B	Sb	Pb	Nb					
		0.004	0.0005	0.001	0.0010	0.001					
T63907 BO-cc blooms	0	C	Mn	Si	P	S	Cu	Cr	Ni	Al	
		0.81	1.04	0.55	0.014	0.005	0.05	0.67	0.03	0.003	
		O	H	N	Mo	W	V	Ti	Co	As	
		0.0005	1.13 ppm	0.0035	0.011	0.01	0.050	0.0022	0.006	0.003	
		Sn	B	Sb	Pb	Nb					
		0.004	0.0006	0.001	0.0010	0.001					

Mechanical values

Heat No.	Yield point Re [MPa]	Tensile strength Rm [MPa]	Elongation %	Contraction Z [%]	Baumann prints	Microcleaness accord.to DIN 50 602 K3	Hardness HB	Residual stress test
T18931	849	1262	13.1	32.8	D.2			1-375, 2-385, 3-372, 4-378, 5-349, 6-361, 7-361, 8-378



Heat No.	Yield point Re [MPa]	Tensile strength Rm [MPa]	Elongation %	Contraction Z [%]	Baumann prints	Microcleanness accord.to DIN 50 602 K3	Hardness HB	Residual stress test
T18933	841	1254	11.7	26.3	D.2		1-382, 2-381, 3-384, 4-389, 5-346, 6-344, 7-369, 8-367	
T18935	861	1284	12.8	29.2	D.2		1-383, 2-384, 3-376, 4-378, 5-346, 6-340, 7-358, 8-354	
T18944	807	1197	10.3	27.2	D.2		1-378, 2-378, 3-396, 4-361, 5-338, 6-346, 7-355, 8-353	
T18945	1028	1330	10.3	31.1	D.2		1-380, 2-374, 3-417, 4-366, 5-347, 6-356, 7-368, 8-369	
T18958	823	1260	8.3	21.4	D.3		1-357, 2-386, 3-388, 4-372, 5-341, 6-378, 7-363, 4-361,	
T18965	818	1268	12.7	31.1	D.2		1-380, 2-378, 3-368, 4-378, 5-350, 6-351, 7-337, 8-326	
T18967	827	1263	13.4	30.8	D.2		1-380, 2-385, 3-380, 4-380, 5-352, 6-356, 7-379, 8-372	
T18969	840	1255	12.5	33.0	D.4		1-378, 2-386, 3-382, 4-383, 5-354, 6-348, 7-354, 8-375	
T52256	884	1297	12.4	31.1	D.2		1-369, 2-376, 3-378, 4-370, 5-344, 6-347, 7-374, 8-363	
T63907	940	1328	9.3	30.6	D.2		1-379, 2-385, 3-378, 4-382, 5-351, 6-359, 7-368, 8-365	
Radio - isotopic activity was controlled in ladle sample, it was no higher than 100 Bq/kg.								



Der Werksachverständige - Expert :
Sikora Dalibor, Ing. ,

Třinec : 24.10.2022

Der Leiter der Qualitätskontrolle für Freigabe und Atteste, unabhängiger berechtigter Vertreter
Manager of Quality Inspection of Realising and Attesting, independent authorized agent