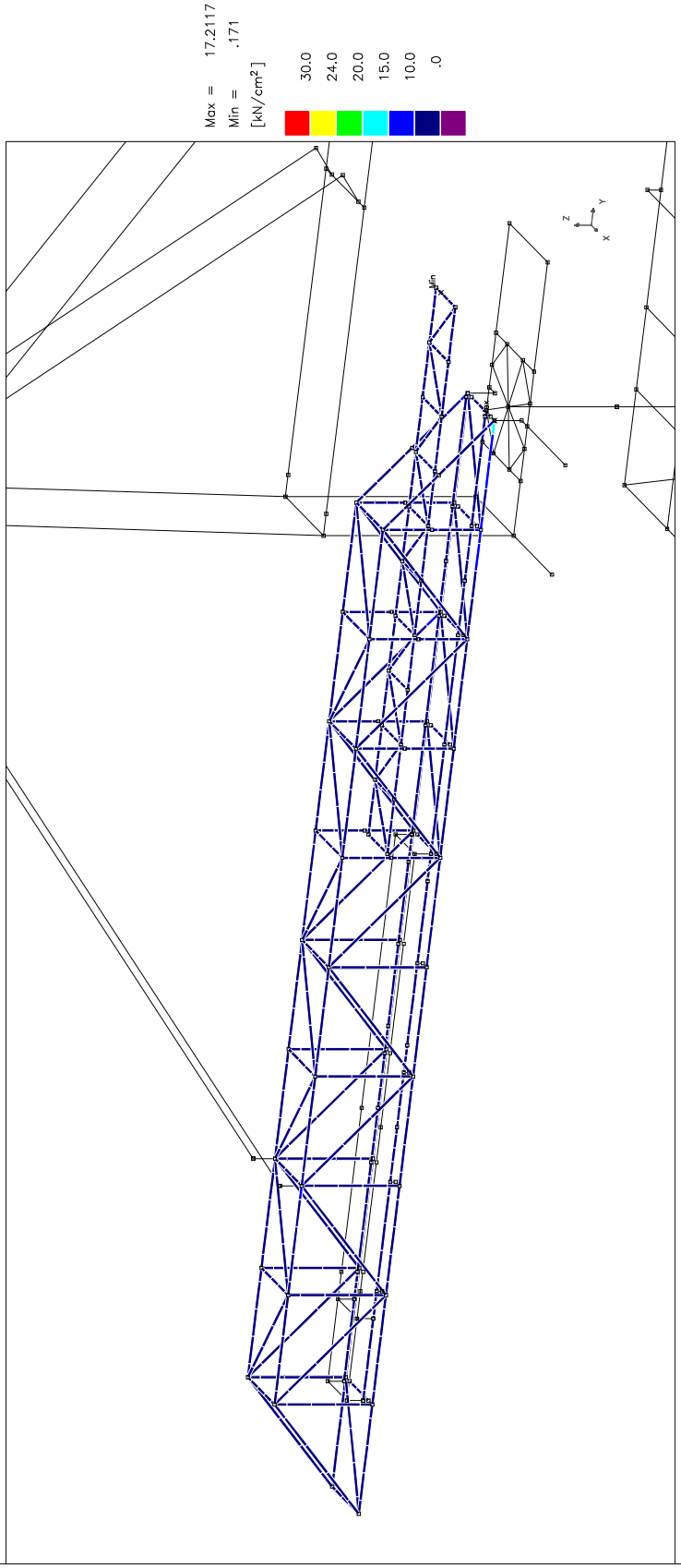
```
node display with node boxes;
beam display with beam axis;
colour contour, extr.-result: SigmaV Boom P
    Output of Stresses
    find extreme value for: combined stress (v. Mises), Struct. Elem.
    kind of extreme value: maximum
    output: extreme value per section
    eval. pattern acc.: [_Strength]
      26 considered load cases
Min =      .171   Max =    17.2117 [kN/cm²]
```



00000 - MUSTER Schiffsbelader_V03_026.kpl

```
output date: 29.08.2013 15:31:23  [  0.982 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    result: SigmaV Boom T
    Output of Stresses
    find extreme value for: combined stress (v. Mises), Struct. Elem.
    kind of extreme value: maximum
    output: extreme value per beam
    eval. pattern acc.: [_Strength]
      26 considered load cases
    load case: in Service          LLF situation: W+000 S+000 Ka
    load case: in Service          LLF situation: W+000 S+000 Ki
    load case: in Service          LLF situation: W+000 S+000 Km
    load case: in Service          LLF situation: W+000 S+030 Ka
    load case: in Service          LLF situation: W+000 S+030 Ki
    load case: in Service          LLF situation: W+000 S+045 Ka
    load case: in Service          LLF situation: W+000 S+045 Ki
    load case: in Service          LLF situation: W+000 S-020 Ka
    load case: in Service          LLF situation: W+000 S-020 Ki
    load case: in Service          LLF situation: W+010 S+000 Ka
    load case: in Service          LLF situation: W+010 S+000 Ki
    load case: in Service          LLF situation: W+010 S+030 Ka
    load case: in Service          LLF situation: W+010 S+030 Ki
    load case: in Service          LLF situation: W+010 S+045 Ka
    load case: in Service          LLF situation: W+010 S+045 Ki
    load case: in Service          LLF situation: W+010 S-020 Ka
    load case: in Service          LLF situation: W+010 S-020 Ki
    load case: in Service          LLF situation: W-015 S+000 Ka
    load case: in Service          LLF situation: W-015 S+000 Ki
    load case: in Service          LLF situation: W-015 S+030 Ka
    load case: in Service          LLF situation: W-015 S+030 Ki
    load case: in Service          LLF situation: W-015 S+045 Ka
    load case: in Service          LLF situation: W-015 S+045 Ki
    load case: in Service          LLF situation: W-015 S-020 Ka
    load case: in Service          LLF situation: W-015 S-020 Ki
    load case: out of Service      LLF situation: W+025 S+090 Ki

    list of objects:
        list name: Boom                    list type: Beams, Simple List
        subsystems:boom;
        elements:

output of:
----------
beam                beam name
section             section                                      [cm]
lcp                 permutation of load case
pnt                 cross section point
W                   weld
sig(Nx)             normal stress x                              [kN/cm²]
sig(N+M)            total normal stress (normal force + bending)[kN/cm²]
tau(Q+T)            total shear stress (shear force + torsion)  [kN/cm²]
sigc(vM)            combined stress (v. Mises)                   [kN/cm²]
O                   kind of extreme value
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section
     p = extreme value per point

|section| < .1 [cm] = 0
|sig(Nx)| < .01 [kN/cm²] = 0
|sig(N+M)| < .01 [kN/cm²] = 0
```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Lizenznehmer: Kühne BSB GmbH, Darmstadt

|tau(Q+T)| < .01 [kN/cm²] = 0
|sigc(vM)| < .01 [kN/cm²] = 0

beam	section	lcp	pntW	sig(Nx)	sig(N+M)	tau(Q+T)	sigc(vM)	O
boom								
Item 012. 50	20.0	514	4	-.328	-15.642	-1.084	15.755	b
Item 012. 51	134.536	514	1	-1.883	-8.569	-.249	8.58	b
Item 012. 52	134.536	513	4	-1.848	-8.534	.263	8.546	b
Item 012. 53	200.0	514	1	-6.568	-16.061	-.686	16.105	b
Item 012. 54	200.0	513	4	-7.098	-17.164	.74	17.212	b
Item 012. 55	134.536	514	2	-2.823	-11.242	-.598	11.289	b
Item 012. 56	134.536	513	3	-2.853	-11.559	.642	11.612	b
Item 012. 57	.0	514	4	-.182	-13.361	2.091	13.843	b
Item 012. 58	20.0	514	2	-.09	-15.287	2.418	15.85	b
Item 013. 49	.0	513	2	-.737	-4.387	1.071	4.763	b
Item 013. 50	.0	513	3	-.038	-3.526	-1.415	4.294	b
Item 013. 51	.0	513	3	-.533	-5.915	-1.54	6.489	b
Item 013. 52	.0	462	2	.0	-1.938	-1.203	2.845	b
Item 013. 53	.0	381	1	.0	-1.936	1.21	2.854	b
Item 013. 54	.0	513	7	-.01	.0	.749	1.298	b
Item 013. 55	.0	514	7	-.01	.0	-.805	1.394	b
Item 013. 56	.0	42	4	.0	1.153	1.193	2.366	b
Item 013. 57	.0	514	7	.0	.032	-1.401	2.427	b
Item 013. 58	.0	513	3	.088	1.911	.471	2.078	b
Item 013. 59	.0	514	4	.082	2.056	-.626	2.325	b
Item 013. 60	.0	514	4	.943	9.507	-1.968	10.099	b
Item 013. 61	20.0	514	4	.989	4.896	.74	5.061	b
Item 013. 62	20.0	514	4	.757	4.169	1.275	4.718	b
Item 013. 63	.0	461	3	-2.122	-8.662	-.276	8.675	b
Item 013. 64	.0	461	1	-2.113	-3.537	-.039	3.538	b
Item 013. 65	200.0	514	2	-3.411	-4.953	-.074	4.955	b
Item 013. 66	.0	514	2	-3.313	-5.472	.177	5.48	b
Item 013. 67	200.0	514	2	-2.823	-3.826	.213	3.844	b
Item 013. 68	200.0	514	1	-2.727	-4.822	.226	4.838	b
Item 013. 69	.0	422	3	-2.156	-8.803	-.296	8.818	b
Item 013. 70	.0	422	1	-2.15	-3.545	.0	3.545	b
Item 013. 71	200.0	442	2	-2.935	-4.114	.075	4.116	b
Item 013. 72	200.0	513	4	-4.266	-6.098	-.243	6.113	b
Item 013. 73	.0	42	3	-1.933	-2.705	.066	2.708	b
Item 013. 74	200.0	513	4	-3.422	-5.92	-.2	5.93	b
Item 013. 75	200.0	513	1	-1.078	-2.507	.207	2.532	b
Item 013. 76	.0	513	1	-.757	-3.085	.062	3.086	b
Item 013. 77	200.0	513	1	1.619	3.893	.418	3.96	b
Item 013. 78	200.0	514	2	-1.171	-4.588	-.317	4.621	b
Item 013. 79	.0	513	2	2.519	3.664	-.327	3.707	b
Item 013. 80	200.0	513	2	3.077	4.431	-.331	4.468	b
Item 013. 81	200.0	514	1	-6.422	-11.523	.409	11.545	b
Item 013. 82	200.0	514	4	-1.091	-2.567	-.207	2.592	b
Item 013. 83	.0	514	4	-.775	-3.142	-.051	3.143	b
Item 013. 84	200.0	514	4	1.604	3.855	-.419	3.923	b
Item 013. 85	200.0	513	3	-1.031	-4.322	.352	4.365	b
Item 013. 86	.0	514	3	3.106	4.247	.287	4.276	b
Item 013. 87	200.0	514	3	3.745	5.214	.313	5.242	b
Item 013. 88	200.0	513	4	-7.385	-12.896	-.4	12.915	b
Item 013. 89	200.0	341	2	.414	9.78	.531	9.824	b
Item 013. 90	200.0	422	2	.422	9.964	.524	10.005	b
Item 013. 91	50.0	514	3	-.541	-1.944	.165	1.965	b
Item 013. 92	50.0	513	2	-.532	-1.927	-.166	1.949	b
Item 013. 93	20.0	514	3	.048	-3.491	1.447	4.298	b
Item 013. 94	.0	513	3	-.161	-1.278	.578	1.623	b
Item 013. 95	.0	513	3	-.041	-1.27	.618	1.66	b
Item 013. 96	.0	513	4	.055	1.73	.165	1.754	b
Item 013. 97	200.0	461	1	.393	2.304	-.109	2.312	b

beam	section	lcp	pntW	sig(Nx)	sig(N+M)	tau(Q+T)	sigc(vM)	O
Item 013. 98	.0	514	1	.06	1.778	-.163	1.8	b
Item 013. 99	200.0	422	1	.397	2.317	-.02	2.317	b
Item 013. 100	20.0	514	3	.136	-4.827	1.058	5.164	b
Item 013. 101	.0	513	4	-1.013	-6.482	-.114	6.485	b
Item 013. 102	.0	514	4	.983	7.126	-1.127	7.389	b
Item 013. 103	100.0	514	2	.754	6.206	.313	6.229	b
Item 013. 104	.0	514	1	.048	4.24	.498	4.327	b
Item 013. 105	100.0	513	3	-.279	-8.021	1.727	8.56	b
Item 013. 106	20.0	513	2	-1.013	-10.509	-2.45	11.333	b
Item 013. 107	.0	513	2	-.96	-5.043	.326	5.074	b
Item 014. 1	.0	514	1	.0	-3.321	-.056	3.323	b
Item 014. 2	.0	514	3	.379	7.903	-.087	7.904	b
Item 014. 3	.0	514	1	-.119	-10.966	-.333	10.981	b
Item 014. 4	.0	514	3	1.047	12.731	-.079	12.731	b
Item 014. 5	.0	513	4	-.026	-3.212	.022	3.212	b
Item 014. 6	.0	513	2	.393	8.041	.139	8.045	b
Item 014. 7	.0	513	4	-.16	-11.188	.312	11.201	b
Item 014. 8	.0	513	2	1.051	13.795	.14	13.797	b
Item 014. 9	.0	514	3	.071	6.526	-.154	6.531	b
Item 014. 10	.0	514	3	.729	6.673	-.054	6.674	b
Item 014. 11	.0	514	3	.046	5.715	.04	5.715	b
Item 014. 12	.0	514	3	1.114	6.354	-.258	6.369	b
Item 014. 13	.0	513	2	.056	7.78	.104	7.782	b
Item 014. 14	.0	513	2	.739	6.349	-.022	6.349	b
Item 014. 15	.0	513	2	.01	6.425	-.054	6.426	b
Item 014. 16	.0	513	2	1.097	5.782	.237	5.797	b
Item 015. 12	.0	514	3	.997	4.029	.072	4.031	b
Item 015. 13	180.0	514	3	.865	9.643	.227	9.651	b
Item 015. 14	.0	42	3	-.768	-5.422	.072	5.423	b
Item 015. 15	.0	513	2	1.018	3.926	-.087	3.929	b
Item 015. 16	.0	514	4	6.21	9.865	.135	9.868	b
Item 015. 17	269.073	514	1	-4.856	-6.849	.017	6.849	b
Item 015. 18	269.072	514	3	3.9	5.645	.015	5.645	b
Item 015. 19	.0	513	2	4.57	6.371	.062	6.372	b
Item 015. 20	269.072	513	3	-7.613	-9.946	-.126	9.949	b
Item 015. 21	.0	513	2	7.577	9.324	.108	9.326	b
Item 015. 22	.0	513	1	6.135	9.789	-.149	9.793	b
Item 015. 23	269.073	513	4	-4.853	-6.916	-.014	6.916	b
Item 015. 24	269.072	513	2	3.876	5.49	-.01	5.49	b
Item 015. 25	.0	514	3	4.535	6.305	-.064	6.306	b
Item 015. 26	269.072	514	2	-7.6	-10.015	.131	10.017	b
Item 015. 27	.0	514	3	7.621	9.338	-.108	9.34	b
Item 015. 28	.0	514	1	4.098	5.92	-.033	5.92	b
Item 015. 29	.0	514	2	-5.313	-6.957	-.062	6.958	b
Item 015. 30	.0	513	4	-5.868	-6.877	.128	6.88	b
Item 015. 31	.0	514	3	-4.988	-6.97	-.023	6.97	b
Item 015. 32	.0	513	4	-4.431	-6.587	.011	6.587	b
Item 015. 33	.0	514	3	-3.727	-6.673	.0	6.673	b
Item 015. 34	.0	513	3	5.935	7.199	-.016	7.199	b
Item 015. 35	.0	513	3	7.789	9.629	-.069	9.63	b
Item 015. 36	244.131	514	2	-5.804	-9.645	.014	9.645	b
Item 015. 37	.0	513	1	-.259	-7.711	.047	7.711	b
Item 015. 38	244.131	513	3	2.94	7.604	.253	7.617	b
Item 015. 39	180.0	514	4	.709	7.891	-.158	7.896	b
Item 015. 40	180.0	513	1	.764	7.856	.153	7.861	b
Item 015. 41	.0	513	1	-.167	-3.263	-.054	3.264	b
Item 015. 42	.0	513	3	.523	7.114	-.378	7.144	b
Item 015. 43	.0	514	2	.496	5.481	.0	5.481	b
Item 015. 44	.0	513	3	.51	5.537	-.015	5.537	b
Item 015. 45	.0	514	2	-.613	-2.405	-.077	2.409	b
Item 015. 46	.0	513	1	-1.92	-4.787	.104	4.79	b
Item 015. 47	.0	514	1	-1.718	-4.342	.021	4.342	b
Item 015. 48	.0	513	4	-1.775	-4.371	-.023	4.371	b

beam	section	lcp	pntW	sig(Nx)	sig(N+M)	tau(Q+T)	sigc(vM)	O
Item 015. 49	.0	513	3	4.748	6.22	.014	6.22	b
Item 015. 50	140.0	514	1	-.287	-9.362	-.641	9.428	b
Item 015. 51	140.0	514	3	.303	5.155	.068	5.156	b
Item 015. 52	.0	513	3	.255	2.471	.148	2.484	b
Item 015. 53	140.0	513	4	.435	4.915	.013	4.915	b
Item 015. 54	.0	514	4	.267	6.094	.049	6.095	b
Item 015. 55	140.0	513	4	.277	6.632	-.058	6.633	b
Item 015. 56	140.0	513	2	-.991	-10.277	.373	10.297	b
Item 015. 57	269.072	431	2	2.996	7.3	-.123	7.303	b
Item 015. 58	269.072	514	3	1.25	7.135	.01	7.135	b
Item 015. 59	180.0	513	2	.856	9.793	-.251	9.803	b
Item 015. 60	.0	41	2	-.712	-4.958	-.044	4.959	b
Item 016. 11	100.0	514	1	-1.154	-2.486	-.134	2.497	b
Item 016. 12	100.0	513	4	-.959	-2.061	.138	2.075	b
Item 016. 13	100.0	514	1	-1.46	-4.935	-.191	4.946	b
Item 016. 14	100.0	513	4	-1.375	-4.578	.191	4.59	b
Item 016. 15	.0	122	3	.0	8.998	-.028	8.998	b
Item 016. 16	.0	81	2	.0	5.186	.0	5.186	b
Item 016. 17	.0	161	9	.0	1.932	-.163	1.952	b
Item 016. 18	.0	161	2	.0	9.176	.0	9.176	b
Item 016. 19	.0	22	3	.0	5.21	.0	5.21	b
Item 016. 20	.0	161	10	.0	-1.939	.162	1.96	b
Item 016. 21	.0	513	1	-.876	-3.333	-.066	3.335	b
Item 016. 22	100.0	514	2	.825	2.232	-.015	2.232	b
Item 016. 23	.0	514	2	.536	2.898	-.017	2.898	b
Item 016. 24	50.0	42	6	.097	1.688	1.748	3.466	b
Item 016. 25	150.0	513	1	.3	2.858	.072	2.861	b
Item 016. 26	200.0	514	3	1.452	3.541	.053	3.543	b
Item 016. 27	200.0	514	3	2.502	5.837	.037	5.838	b
Item 016. 28	.0	513	2	-3.324	-6.268	-.058	6.268	b
Item 016. 29	200.0	513	4	-1.892	-9.587	.079	9.588	b
Item 016. 30	.0	514	4	-.893	-3.388	.064	3.39	b
Item 016. 31	50.0	513	3	.801	2.191	.015	2.192	b
Item 016. 32	.0	513	3	.505	2.837	.018	2.837	b
Item 016. 33	50.0	41	6	.093	1.681	1.75	3.467	b
Item 016. 34	150.0	514	4	.423	3.073	-.069	3.076	b
Item 016. 35	200.0	513	2	1.086	3.228	-.056	3.23	b
Item 016. 36	200.0	514	2	-1.921	-5.362	.035	5.362	b
Item 016. 37	.0	514	3	-2.735	-5.436	.057	5.437	b
Item 016. 38	200.0	514	1	-1.534	-8.285	-.079	8.287	b
Item 016. 39	50.0	513	2	.297	6.207	.072	6.208	b
Item 016. 40	50.0	514	3	.42	6.719	-.069	6.72	b
Item 016. 41	.0	514	2	.531	1.457	-.017	1.458	b
Item 016. 42	.0	513	3	.5	1.401	.018	1.401	b
Item 016. 43	.0	342	5	-.229	-1.903	-2.365	4.517	b
Item 016. 44	.0	341	5	-.262	-1.934	-2.364	4.528	b
Item 016. 45	150.0	514	4	.185	2.794	-.042	2.795	b
Item 016. 46	150.0	513	1	.143	2.797	.042	2.798	b
Item 016. 47	100.0	513	4	-3.334	-10.022	-.058	10.022	b
Item 016. 48	100.0	514	1	-2.745	-8.943	.057	8.944	b
Item 016. 49	.0	514	2	-.071	-1.584	.143	1.604	b
Item 016. 50	.0	513	3	-.393	-2.222	-.153	2.238	b
Item 016. 51	.0	514	2	-.623	-1.283	.178	1.32	b
Item 016. 52	.0	513	3	-.944	-1.686	-.169	1.712	b
Item 016. 53	.0	514	2	-1.082	-2.784	.254	2.819	b
Item 016. 54	.0	513	3	-1.36	-2.863	-.264	2.9	b
Item 016. 55	100.0	514	1	-1.321	-8.685	.0	8.685	b
Item 016. 56	100.0	513	4	-1.386	-9.481	.0	9.481	b
Item 016. 57	100.0	514	1	-.628	-1.592	-.077	1.598	b
Item 016. 58	100.0	513	4	-.408	-1.478	.067	1.483	b
Item 017. 1	100.0	513	3	-.836	-8.581	.0	8.581	b
Item 017. 2	.0	514	1	.022	9.109	-.012	9.109	b
Item 017. 3	100.0	513	1	.073	11.262	.014	11.262	b

beam	section	lcp	pntW	sig(Nx)	sig(N+M)	tau(Q+T)	sigc(vM)	O
Item 017. 4	100.0	513	1	.356	14.495	.0	14.495	b
Item 017. 5	.0	513	4	-.656	-16.583	-.059	16.583	b
Item 017. 6	100.0	513	3	-.116	-2.411	.026	2.412	b
Item 017. 7	.0	514	1	.021	2.263	-.019	2.264	b
Item 017. 8	100.0	513	3	-.046	-2.109	.035	2.11	b
Item 017. 9	.0	513	4	-.23	-.891	-.056	.897	b
Item 017. 10	100.0	512	4	.0	-.503	.0	.503	b
Item 017. 11	100.0	512	1	.0	.509	.0	.509	b
Item 018. 1	.0	513	3	5.564	7.468	-.061	7.469	b
Item 018. 2	.0	514	4	5.197	6.873	-.08	6.875	b
Item 018. 3	.0	513	3	4.953	6.923	-.077	6.925	b
Item 018. 4	.0	514	4	4.917	6.636	-.106	6.638	b
Item 018. 5	.0	513	3	4.151	6.424	-.132	6.429	b
Item 018. 6	141.421	513	1	-3.612	-5.865	.095	5.868	b
Item 018. 7	141.421	514	4	.498	4.713	.013	4.713	b
Item 018. 8	141.421	513	3	2.352	4.61	-.315	4.643	b
Item 018. 9	.0	514	4	.756	2.02	.088	2.025	b
Item 018. 10	.0	513	3	.266	1.327	-.025	1.328	b
Item 012. 54	200.0	513	4	-7.098	-17.164	.74	17.212	a

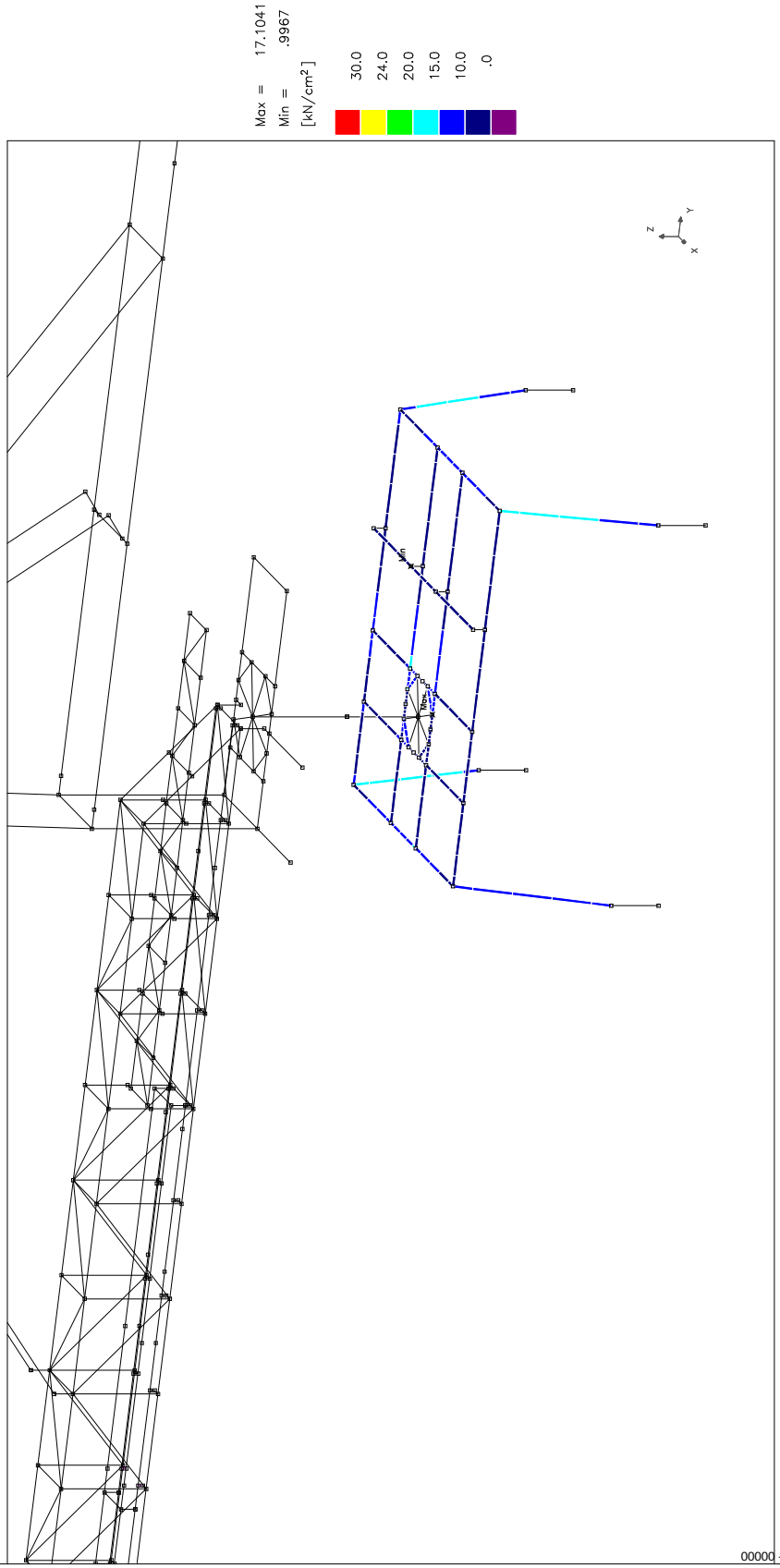
```
Following beams do not have classifiable (and selected) points for proof of stresses:
    boom ( rigid   1; rigid   2; rigid   3; rigid   4;
       rigid   5; rigid   6; rigid   7; rigid   8; rigid   9;
       rigid  10; rigid  11; rigid  12; rigid  13; rigid  14;
       rigid  15; rigid  16; rigid  17; rigid  18; rigid  19;
       rigid  20; rigid  21; rigid  22; rigid  23; rigid  24;
       rigid  25; rigid  26; rigid  27; rigid  28; rigid  29;
       rigid  30; rigid  31; rigid  32)



description of load events
 22:    load case:    in Service                  situation: W+000 S+000 Ki
          1.5     * DL Total                28.03.2013 16:08
          1.5     * LL                      28.03.2013 16:08
           .15    * LL                      28.03.2013 16:08
         -1.5     * SL                      28.03.2013 16:08
 41:    load case:    in Service                  situation: W+000 S+000 Km
          1.5     * DL Total                28.03.2013 16:08
          1.5     * LL                      28.03.2013 16:08
           .15    * LL                      28.03.2013 16:08
          1.5     * SL                      28.03.2013 16:08
 42:    load case:    in Service                  situation: W+000 S+000 Km
          1.5     * DL Total                28.03.2013 16:08
          1.5     * LL                      28.03.2013 16:08
           .15    * LL                      28.03.2013 16:08
         -1.5     * SL                      28.03.2013 16:08
 81:    load case:    in Service                  situation: W+000 S+030 Ki
          1.5     * DL Total                28.03.2013 16:08
          1.5     * LL                      28.03.2013 16:08
           .15    * LL                      28.03.2013 16:08
          1.5     * SL                      28.03.2013 16:08
 122:   load case:    in Service                  situation: W+000 S+045 Ki
          1.5     * DL Total                28.03.2013 16:08
          1.5     * LL                      28.03.2013 16:08
           .15    * LL                      28.03.2013 16:08
         -1.5     * SL                      28.03.2013 16:08
 161:   load case:    in Service                  situation: W+000 S-020 Ki
          1.5     * DL Total                28.03.2013 16:09
          1.5     * LL                      28.03.2013 16:09
           .15    * LL                      28.03.2013 16:09
          1.5     * SL                      28.03.2013 16:09
```

```
description of load events
 341:   load case:    in Service                  situation: W-015 S+000 Ka
          1.5     * DL Total                28.03.2013 16:09
          1.5     * LL                      28.03.2013 16:09
           .15    * LL                      28.03.2013 16:09
          1.5     * SL                      28.03.2013 16:09
 342:   load case:    in Service                  situation: W-015 S+000 Ka
          1.5     * DL Total                28.03.2013 16:09
          1.5     * LL                      28.03.2013 16:09
           .15    * LL                      28.03.2013 16:09
         -1.5     * SL                      28.03.2013 16:09
 381:   load case:    in Service                  situation: W-015 S+030 Ka
          1.5     * DL Total                28.03.2013 16:09
          1.5     * LL                      28.03.2013 16:09
           .15    * LL                      28.03.2013 16:09
          1.5     * SL                      28.03.2013 16:09
 422:   load case:    in Service                  situation: W-015 S+045 Ka
          1.5     * DL Total                28.03.2013 16:09
          1.5     * LL                      28.03.2013 16:09
           .15    * LL                      28.03.2013 16:09
         -1.5     * SL                      28.03.2013 16:09
 431:   load case:    in Service                  situation: W-015 S+045 Ka
          1.33    * DL Total                28.03.2013 16:09
          1.33    * LL                      28.03.2013 16:09
           .133   * LL                      28.03.2013 16:09
         -1.33    * SL                      28.03.2013 16:09
          1.33    * W 20 m/s +y             28.03.2013 16:09
 442:   load case:    in Service                  situation: W-015 S+045 Ki
          1.5     * DL Total                28.03.2013 16:09
          1.5     * LL                      28.03.2013 16:09
           .15    * LL                      28.03.2013 16:09
         -1.5     * SL                      28.03.2013 16:09
 461:   load case:    in Service                  situation: W-015 S-020 Ka
          1.5     * DL Total                28.03.2013 16:09
          1.5     * LL                      28.03.2013 16:09
           .15    * LL                      28.03.2013 16:09
          1.5     * SL                      28.03.2013 16:09
 462:   load case:    in Service                  situation: W-015 S-020 Ka
          1.5     * DL Total                28.03.2013 16:09
          1.5     * LL                      28.03.2013 16:09
           .15    * LL                      28.03.2013 16:09
         -1.5     * SL                      28.03.2013 16:09
 512:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
         -1.21    * W 51,75m/s +x           28.03.2013 16:09
 513:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
          1.21    * W 51,75m/s +y           28.03.2013 16:09
 514:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
         -1.21    * W 51,75m/s +y           28.03.2013 16:09
```

```
node display with node boxes;
beam display with beam axis;
colour contour, extr.-result: SigmaV Port P
    Output of Stresses
    find extreme value for: combined stress (v. Mises), Struct. Elem.
    kind of extreme value: maximum
    output: extreme value per section
    eval. pattern acc.: [_Strength]
      26 considered load cases
Min =       .9967  Max =    17.1041 [kN/cm²]
```



00000 - MUSTER Schiffsbelader_V03_029.kpl

```
output date:  2.09.2013 10:21:05  [  0.936 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    result: SigmaV Port T
    Output of Stresses
    find extreme value for: combined stress (v. Mises), Struct. Elem.
    kind of extreme value: maximum
    output: extreme value per beam
    eval. pattern acc.: [_Strength]
      26 considered load cases
    load case: in Service          LLF situation: W+000 S+000 Ka
    load case: in Service          LLF situation: W+000 S+000 Ki
    load case: in Service          LLF situation: W+000 S+000 Km
    load case: in Service          LLF situation: W+000 S+030 Ka
    load case: in Service          LLF situation: W+000 S+030 Ki
    load case: in Service          LLF situation: W+000 S+045 Ka
    load case: in Service          LLF situation: W+000 S+045 Ki
    load case: in Service          LLF situation: W+000 S-020 Ka
    load case: in Service          LLF situation: W+000 S-020 Ki
    load case: in Service          LLF situation: W+010 S+000 Ka
    load case: in Service          LLF situation: W+010 S+000 Ki
    load case: in Service          LLF situation: W+010 S+030 Ka
    load case: in Service          LLF situation: W+010 S+030 Ki
    load case: in Service          LLF situation: W+010 S+045 Ka
    load case: in Service          LLF situation: W+010 S+045 Ki
    load case: in Service          LLF situation: W+010 S-020 Ka
    load case: in Service          LLF situation: W+010 S-020 Ki
    load case: in Service          LLF situation: W-015 S+000 Ka
    load case: in Service          LLF situation: W-015 S+000 Ki
    load case: in Service          LLF situation: W-015 S+030 Ka
    load case: in Service          LLF situation: W-015 S+030 Ki
    load case: in Service          LLF situation: W-015 S+045 Ka
    load case: in Service          LLF situation: W-015 S+045 Ki
    load case: in Service          LLF situation: W-015 S-020 Ka
    load case: in Service          LLF situation: W-015 S-020 Ki
    load case: out of Service      LLF situation: W+025 S+090 Ki

    list of objects:
        list name: Portal                 list type: Beams, Simple List
        subsystems:portal;
        elements:

output of:
----------
beam                beam name
section             section                                    [cm]
lcp                 permutation of load case
pnt                 cross section point
W                   weld
sig(Nx)             normal stress x                            [kN/cm²]
sig(N+M)            total normal stress (normal force + bending)[kN/cm²]
tau(Q+T)            total shear stress (shear force + torsion)  [kN/cm²]
sigc(vM)            combined stress (v. Mises)                 [kN/cm²]
O                   kind of extreme value
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section
     p = extreme value per point

|section| < .1 [cm] = 0
|sig(Nx)| < .01 [kN/cm²] = 0
|sig(N+M)| < .01 [kN/cm²] = 0
```

```
|tau(Q+T)| < .01 [kN/cm²] = 0
|sigc(vM)| < .01 [kN/cm²] = 0
```

beam	section	lcp	pntW	sig(Nx)	sig(N+M)	tau(Q+T)	sigc(vM)	O
portal								
Item 001. 41	158.134	514	1	-2.863	-16.968	-.172	16.97	b
Item 001. 42	79.067	514	2	-1.402	-14.807	.196	14.811	b
Item 001. 43	158.134	513	-1	-2.186	-15.428	.0	15.428	b
Item 001. 44	79.067	513	3	-1.222	-15.955	-.045	15.955	b
Item 002. 1	225.0	513	1	-.199	-13.023	1.086	13.158	b
Item 002. 2	150.0	513	1	-.061	-14.351	-1.167	14.493	b
Item 002. 3	225.0	514	4	-.142	-14.833	.037	14.833	b
Item 002. 4	150.0	514	4	.063	-14.892	1.183	15.033	b
Item 002. 11	.0	513	1	.02	-13.027	-1.721	13.363	b
Item 002. 12	.0	514	2	.126	14.871	-.49	14.895	b
Item 003. 1	.0	513	-1	-.314	-11.005	.303	11.018	b
Item 003. 2	215.0	513	2	-.299	-12.968	-.938	13.069	b
Item 003. 3	175.0	514	-1	-.365	-11.801	-.177	11.805	b
Item 003. 4	.0	513	-2	-.407	-6.805	-1.58	7.335	b
Item 003. 5	215.0	511	-4	-.099	-8.933	-.39	8.959	b
Item 003. 6	175.0	514	-2	-.194	-7.849	1.907	8.516	b
Item 003. 7	.0	512	2	-.013	-4.712	2.957	6.959	b
Item 003. 8	.0	514	2	.0	-5.726	1.451	6.253	b
Item 003. 9	.0	513	-4	-1.627	-6.683	-1.189	6.993	b
Item 003. 10	.0	513	-4	-1.627	-6.654	-1.189	6.965	b
Item 003. 11	.0	513	2	-.759	-6.141	2.5	7.515	b
Item 003. 12	.0	513	2	-.759	-4.506	2.509	6.261	b
Item 003. 13	.0	513	-2	1.241	5.717	2.876	7.583	b
Item 003. 14	.0	513	-2	1.241	4.559	2.885	6.764	b
Item 003. 15	.0	513	-3	-.116	-11.098	.145	11.101	b
Item 003. 16	.0	513	2	-.172	-8.171	-1.681	8.674	b
Item 003. 17	175.0	514	-2	.158	-9.039	2.331	9.9	b
Item 003. 18	175.0	514	-2	-.34	-6.335	1.232	6.684	b
Item 003. 19	43.94	513	-2	-.629	-13.77	.797	13.84	b
Item 003. 20	.0	513	-4	.155	13.749	1.007	13.859	b
Item 003. 21	225.0	514	2	-.423	-12.216	-1.657	12.549	b
Item 003. 22	225.0	513	-4	-.279	-11.317	-1.092	11.474	b
Item 003. 23	.0	514	2	.394	-8.233	3.127	9.855	b
Item 003. 24	.0	513	-2	.777	10.718	3.349	12.187	b
Item 003. 25	.0	513	-2	-.299	-6.542	-1.424	6.991	b
Item 003. 26	.0	513	2	.236	6.456	-2.557	7.829	b
Item 003. 27	.0	513	-2	-.274	-13.19	-1.283	13.376	b
Item 003. 28	.0	513	-4	.261	15.326	-.895	15.404	b
Item 003. 29	43.94	512	-2	-.034	-9.255	3.935	11.494	b
Item 003. 30	.0	514	-2	-.714	-7.198	.559	7.262	b
Item 003. 31	.0	511	2	-.079	-8.96	1.803	9.489	b
Item 003. 32	.0	513	-2	.311	8.264	1.388	8.607	b
Item 003. 33	43.94	514	2	-.643	-13.473	-1.865	13.855	b
Item 003. 34	43.94	513	2	-.598	-13.012	-3.303	14.214	b
Item 004. 1	.0	514	3	1.08	12.755	.054	12.755	b
Item 004. 2	62.141	514	4	-.691	-9.673	-.187	9.678	b
Item 004. 3	.0	513	4	-1.533	-15.93	-.158	15.932	b
Item 004. 4	62.141	513	3	3.115	17.096	.304	17.104	b
Item 005. 1	112.5	513	1	-.073	-5.336	.0	5.336	b
Item 005. 2	75.0	513	1	-.092	-2.431	.0	2.431	b
Item 005. 3	112.5	513	1	-.072	-5.335	.0	5.335	b
Item 004. 4	62.141	513	3	3.115	17.096	.304	17.104	a

Following beams do not have classifiable (and selected) points for proof of stresses:
portal (rigid 33; rigid 34; rigid 35; rigid 36;
rigid 37; rigid 38; rigid 39; rigid 40; rigid 41;
rigid 42; rigid 43; rigid 44; rigid 45; rigid 46;
rigid 47; rigid 81; rigid 82)

```
Following beams do not have classifiable (and selected) points for proof of stresses:



description of load events
 511:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
          1.21    * W 51,75m/s +x           28.03.2013 16:09
 512:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
         -1.21    * W 51,75m/s +x           28.03.2013 16:09
 513:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
          1.21    * W 51,75m/s +y           28.03.2013 16:09
 514:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
         -1.21    * W 51,75m/s +y           28.03.2013 16:09
```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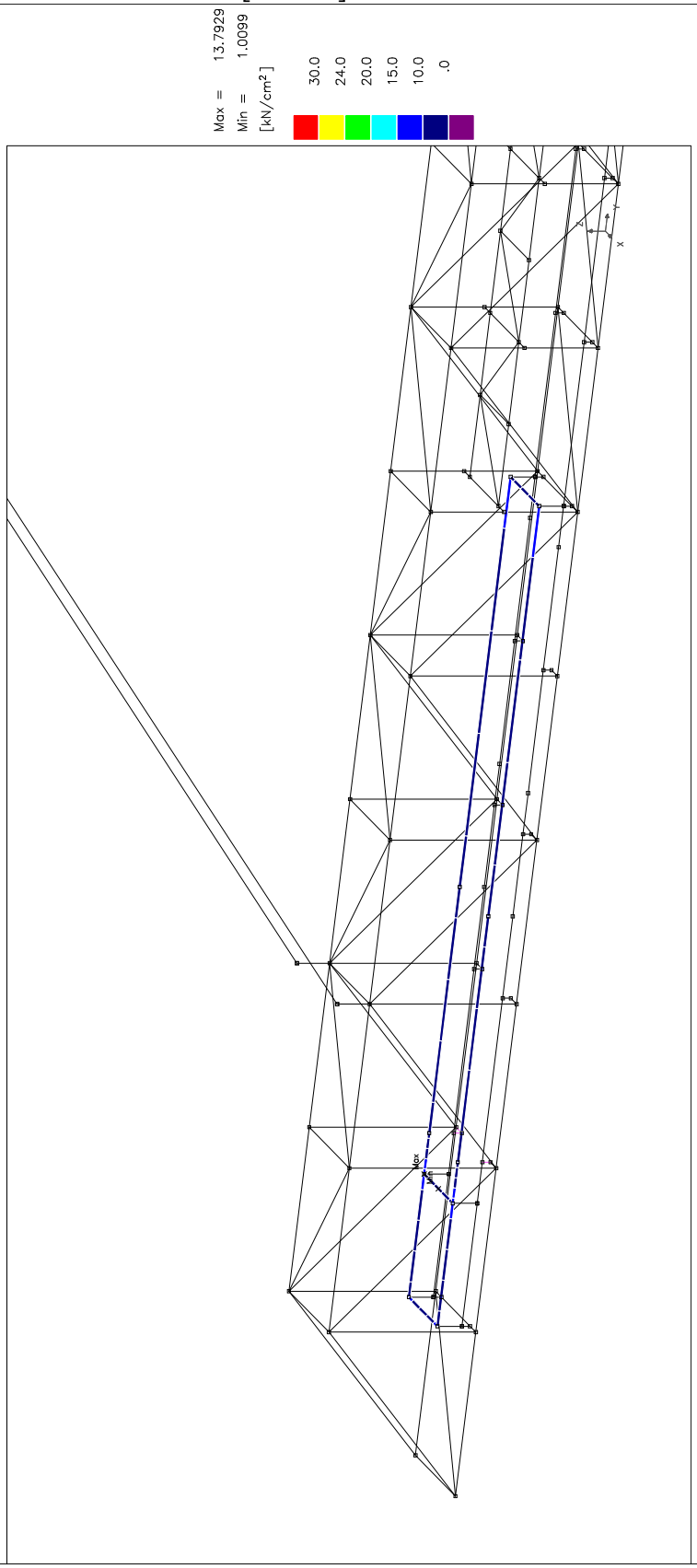
Lizenznehmer: Kühne BSB GmbH, Darmstadt

```
node display with node boxes;
beam display with beam axis;
colour contour, extr.-result: SigmaV Trolley P
    Output of Stresses
    find extreme value for: combined stress (v. Mises), Struct. Elem.
    kind of extreme value: maximum
    output: extreme value per section
    eval. pattern acc.: [_Strength]
      26 considered load cases
Min =     1.0099  Max =    13.7929 [kN/cm²]
```



00000 - MUSTER Schiffsbelader_V03_027.kpl

```
output date:  2.09.2013 10:22:32  [  0.936 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    result: SigmaV Trolley T
    Output of Stresses
    find extreme value for: combined stress (v. Mises), Struct. Elem.
    kind of extreme value: maximum
    output: extreme value per beam
    eval. pattern acc.: [_Strength]
      26 considered load cases
    load case: in Service          LLF situation: W+000 S+000 Ka
    load case: in Service          LLF situation: W+000 S+000 Ki
    load case: in Service          LLF situation: W+000 S+000 Km
    load case: in Service          LLF situation: W+000 S+030 Ka
    load case: in Service          LLF situation: W+000 S+030 Ki
    load case: in Service          LLF situation: W+000 S+045 Ka
    load case: in Service          LLF situation: W+000 S+045 Ki
    load case: in Service          LLF situation: W+000 S-020 Ka
    load case: in Service          LLF situation: W+000 S-020 Ki
    load case: in Service          LLF situation: W+010 S+000 Ka
    load case: in Service          LLF situation: W+010 S+000 Ki
    load case: in Service          LLF situation: W+010 S+030 Ka
    load case: in Service          LLF situation: W+010 S+030 Ki
    load case: in Service          LLF situation: W+010 S+045 Ka
    load case: in Service          LLF situation: W+010 S+045 Ki
    load case: in Service          LLF situation: W+010 S-020 Ka
    load case: in Service          LLF situation: W+010 S-020 Ki
    load case: in Service          LLF situation: W-015 S+000 Ka
    load case: in Service          LLF situation: W-015 S+000 Ki
    load case: in Service          LLF situation: W-015 S+030 Ka
    load case: in Service          LLF situation: W-015 S+030 Ki
    load case: in Service          LLF situation: W-015 S+045 Ka
    load case: in Service          LLF situation: W-015 S+045 Ki
    load case: in Service          LLF situation: W-015 S-020 Ka
    load case: in Service          LLF situation: W-015 S-020 Ki
    load case: out of Service      LLF situation: W+025 S+090 Ki

    list of objects:
        list name: Portal                 list type: Beams, Simple List
        subsystems:portal;
        elements:

output of:
----------
beam                beam name
section             section                                    [cm]
lcp                 permutation of load case
pnt                 cross section point
W                   weld
sig(Nx)             normal stress x                            [kN/cm²]
sig(N+M)            total normal stress (normal force + bending)[kN/cm²]
tau(Q+T)            total shear stress (shear force + torsion)  [kN/cm²]
sigc(vM)            combined stress (v. Mises)                 [kN/cm²]
O                   kind of extreme value
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section
     p = extreme value per point

|section| < .1 [cm] = 0
|sig(Nx)| < .01 [kN/cm²] = 0
|sig(N+M)| < .01 [kN/cm²] = 0
```

|tau(Q+T)| < .01 [kN/cm²] = 0
|sigc(vM)| < .01 [kN/cm²] = 0

beam	section	lcp	pntW	sig(Nx)	sig(N+M)	tau(Q+T)	sigc(vM)	O
portal								
Item 001. 41	158.134	514	1	-2.863	-16.968	-.172	16.97	b
Item 001. 42	79.067	514	2	-1.402	-14.807	.196	14.811	b
Item 001. 43	158.134	513	-1	-2.186	-15.428	.0	15.428	b
Item 001. 44	79.067	513	3	-1.222	-15.955	-.045	15.955	b
Item 002. 1	225.0	513	1	-.199	-13.023	1.086	13.158	b
Item 002. 2	150.0	513	1	-.061	-14.351	-1.167	14.493	b
Item 002. 3	225.0	514	4	-.142	-14.833	.037	14.833	b
Item 002. 4	150.0	514	4	.063	-14.892	1.183	15.033	b
Item 002. 11	.0	513	1	.02	-13.027	-1.721	13.363	b
Item 002. 12	.0	514	2	.126	14.871	-.49	14.895	b
Item 003. 1	.0	513	-1	-.314	-11.005	.303	11.018	b
Item 003. 2	215.0	513	2	-.299	-12.968	-.938	13.069	b
Item 003. 3	175.0	514	-1	-.365	-11.801	-.177	11.805	b
Item 003. 4	.0	513	-2	-.407	-6.805	-1.58	7.335	b
Item 003. 5	215.0	511	-4	-.099	-8.933	-.39	8.959	b
Item 003. 6	175.0	514	-2	-.194	-7.849	1.907	8.516	b
Item 003. 7	.0	512	2	-.013	-4.712	2.957	6.959	b
Item 003. 8	.0	514	2	.0	-5.726	1.451	6.253	b
Item 003. 9	.0	513	-4	-1.627	-6.683	-1.189	6.993	b
Item 003. 10	.0	513	-4	-1.627	-6.654	-1.189	6.965	b
Item 003. 11	.0	513	2	-.759	-6.141	2.5	7.515	b
Item 003. 12	.0	513	2	-.759	-4.506	2.509	6.261	b
Item 003. 13	.0	513	-2	1.241	5.717	2.876	7.583	b
Item 003. 14	.0	513	-2	1.241	4.559	2.885	6.764	b
Item 003. 15	.0	513	-3	-.116	-11.098	.145	11.101	b
Item 003. 16	.0	513	2	-.172	-8.171	-1.681	8.674	b
Item 003. 17	175.0	514	-2	.158	-9.039	2.331	9.9	b
Item 003. 18	175.0	514	-2	-.34	-6.335	1.232	6.684	b
Item 003. 19	43.94	513	-2	-.629	-13.77	.797	13.84	b
Item 003. 20	.0	513	-4	.155	13.749	1.007	13.859	b
Item 003. 21	225.0	514	2	-.423	-12.216	-1.657	12.549	b
Item 003. 22	225.0	513	-4	-.279	-11.317	-1.092	11.474	b
Item 003. 23	.0	514	2	.394	-8.233	3.127	9.855	b
Item 003. 24	.0	513	-2	.777	10.718	3.349	12.187	b
Item 003. 25	.0	513	-2	-.299	-6.542	-1.424	6.991	b
Item 003. 26	.0	513	2	.236	6.456	-2.557	7.829	b
Item 003. 27	.0	513	-2	-.274	-13.19	-1.283	13.376	b
Item 003. 28	.0	513	-4	.261	15.326	-.895	15.404	b
Item 003. 29	43.94	512	-2	-.034	-9.255	3.935	11.494	b
Item 003. 30	.0	514	-2	-.714	-7.198	.559	7.262	b
Item 003. 31	.0	511	2	-.079	-8.96	1.803	9.489	b
Item 003. 32	.0	513	-2	.311	8.264	1.388	8.607	b
Item 003. 33	43.94	514	2	-.643	-13.473	-1.865	13.855	b
Item 003. 34	43.94	513	2	-.598	-13.012	-3.303	14.214	b
Item 004. 1	.0	514	3	1.08	12.755	.054	12.755	b
Item 004. 2	62.141	514	4	-.691	-9.673	-.187	9.678	b
Item 004. 3	.0	513	4	-1.533	-15.93	-.158	15.932	b
Item 004. 4	62.141	513	3	3.115	17.096	.304	17.104	b
Item 005. 1	112.5	513	1	-.073	-5.336	.0	5.336	b
Item 005. 2	75.0	513	1	-.092	-2.431	.0	2.431	b
Item 005. 3	112.5	513	1	-.072	-5.335	.0	5.335	b
Item 004. 4	62.141	513	3	3.115	17.096	.304	17.104	a

Following beams do not have classifiable (and selected) points for proof of stresses:
portal (rigid 33; rigid 34; rigid 35; rigid 36;
rigid 37; rigid 38; rigid 39; rigid 40; rigid 41;
rigid 42; rigid 43; rigid 44; rigid 45; rigid 46;
rigid 47; rigid 81; rigid 82)

```
Following beams do not have classifiable (and selected) points for proof of stresses:



description of load events
 511:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
          1.21    * W 51,75m/s +x           28.03.2013 16:09
 512:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
         -1.21    * W 51,75m/s +x           28.03.2013 16:09
 513:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
          1.21    * W 51,75m/s +y           28.03.2013 16:09
 514:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
         -1.21    * W 51,75m/s +y           28.03.2013 16:09
```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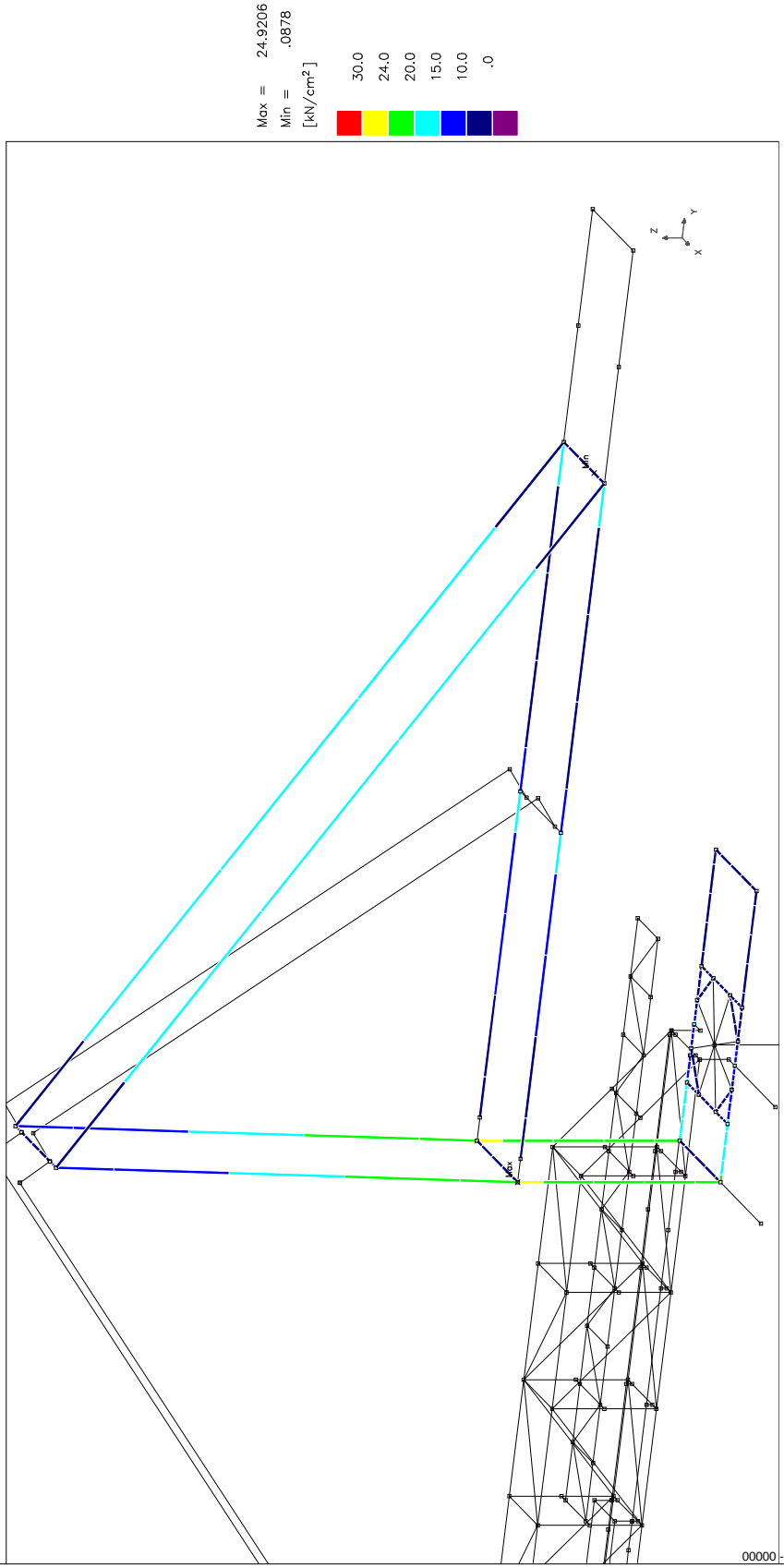
Lizenznehmer: Kühne BSB GmbH, Darmstadt

```
node display with node boxes;
beam display with beam axis;
colour contour, extr.-result: SigmaV U.Crane P
    Output of Stresses
    find extreme value for: combined stress (v. Mises), Struct. Elem.
    kind of extreme value: maximum
    output: extreme value per section
    eval. pattern acc.: [_Strength]
      26 considered load cases
Min =       .0878  Max =    24.9206 [kN/cm²]
```



```
output date: 29.08.2013 15:26:25  [  0.687 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    result: SigmaV U.Crane T
    Output of Stresses
    find extreme value for: combined stress (v. Mises), Struct. Elem.
    kind of extreme value: maximum
    output: extreme value per beam
    eval. pattern acc.: [_Strength]
      26 considered load cases
    load case: in Service          LLF situation: W+000 S+000 Ka
    load case: in Service          LLF situation: W+000 S+000 Ki
    load case: in Service          LLF situation: W+000 S+000 Km
    load case: in Service          LLF situation: W+000 S+030 Ka
    load case: in Service          LLF situation: W+000 S+030 Ki
    load case: in Service          LLF situation: W+000 S+045 Ka
    load case: in Service          LLF situation: W+000 S+045 Ki
    load case: in Service          LLF situation: W+000 S-020 Ka
    load case: in Service          LLF situation: W+000 S-020 Ki
    load case: in Service          LLF situation: W+010 S+000 Ka
    load case: in Service          LLF situation: W+010 S+000 Ki
    load case: in Service          LLF situation: W+010 S+030 Ka
    load case: in Service          LLF situation: W+010 S+030 Ki
    load case: in Service          LLF situation: W+010 S+045 Ka
    load case: in Service          LLF situation: W+010 S+045 Ki
    load case: in Service          LLF situation: W+010 S-020 Ka
    load case: in Service          LLF situation: W+010 S-020 Ki
    load case: in Service          LLF situation: W-015 S+000 Ka
    load case: in Service          LLF situation: W-015 S+000 Ki
    load case: in Service          LLF situation: W-015 S+030 Ka
    load case: in Service          LLF situation: W-015 S+030 Ki
    load case: in Service          LLF situation: W-015 S+045 Ka
    load case: in Service          LLF situation: W-015 S+045 Ki
    load case: in Service          LLF situation: W-015 S-020 Ka
    load case: in Service          LLF situation: W-015 S-020 Ki
    load case: out of Service      LLF situation: W+025 S+090 Ki

    list of objects:
        list name: UpperCrane              list type: Beams, Simple List
        subsystems:upper crane;
        elements:

output of:
----------
beam                beam name
section             section                                      [cm]
lcp                 permutation of load case
pnt                 cross section point
W                   weld
sig(Nx)             normal stress x                              [kN/cm²]
sig(N+M)            total normal stress (normal force + bending)[kN/cm²]
tau(Q+T)            total shear stress (shear force + torsion)  [kN/cm²]
sigc(vM)            combined stress (v. Mises)                   [kN/cm²]
O                   kind of extreme value
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section
     p = extreme value per point

|section| < .1 [cm] = 0
|sig(Nx)| < .01 [kN/cm²] = 0
|sig(N+M)| < .01 [kN/cm²] = 0
```

|tau(Q+T)| < .01 [kN/cm²] = 0
|sigc(vM)| < .01 [kN/cm²] = 0

beam		section	lcp	pntW	sig(Nx)	sig(N+M)	tau(Q+T)	sigc(vM)	O
upper crane									
Item 006.	1	200.0	514	4	.0	.63	-.011	.63	b
Item 006.	2	.0	514	3	.518	12.33	1.1	12.476	b
Item 006.	3	200.0	513	1	.0	1.135	.0	1.135	b
Item 006.	4	.0	513	4	-.907	-12.883	-.96	12.99	b
Item 006.	5	.0	512	7	.0	.0	-.742	1.285	b
Item 006.	6	58.59	514	1	-.117	-1.785	.14	1.802	b
Item 006.	7	100.0	512	4	-.078	-20.02	-.033	20.02	b
Item 006.	8	100.0	512	3	.0	19.344	.0	19.344	b
Item 006.	9	58.59	512	7	-.017	-.017	.841	1.456	b
Item 006.	10	.0	513	7	-.255	-.255	-3.608	6.255	b
Item 006.	11	82.82	513	3	1.175	1.974	.012	1.974	b
Item 006.	12	82.82	513	2	-.743	-2.429	.103	2.435	b
Item 006.	13	.0	512	7	-.017	-.017	-.833	1.443	b
Item 006.	14	58.59	514	7	-.201	-.201	3.413	5.914	b
Item 006.	15	41.41	513	1	-3.047	-18.668	.68	18.705	b
Item 006.	16	41.41	514	4	-1.618	-17.186	-.774	17.238	b
Item 006.	17	58.59	512	10	-.074	-15.731	-1.362	15.907	b
Item 006.	18	58.59	512	8	.015	15.871	-1.397	16.055	b
Item 006.	19	.0	514	1	-1.074	-3.185	.114	3.191	b
Item 006.	20	82.859	513	1	1.11	3.478	-.11	3.483	b
Item 006.	21	.0	512	2	.099	6.461	-.458	6.509	b
Item 006.	22	82.859	512	4	.106	6.545	.459	6.593	b
Item 007.	1	200.0	513	2	.0	-8.513	.194	8.519	b
Item 007.	2	.0	513	1	.0	.446	.0	.446	b
Item 007.	3	.0	514	3	-.882	-15.117	-.041	15.117	b
Item 007.	4	.0	513	2	-.881	-15.112	.041	15.112	b
Item 007.	5	.0	513	1	-1.984	-17.788	.0	17.788	b
Item 007.	6	.0	514	4	-1.983	-17.79	.0	17.79	b
Item 008.	1	200.0	513	2	.0	-5.829	2.334	7.094	b
Item 008.	2	350.0	501	1	-.908	-24.919	.157	24.921	b
Item 008.	3	350.0	501	1	-.901	-24.866	.141	24.867	b
Item 009.	1	.0	501	2	-.761	-22.835	.471	22.849	b
Item 009.	2	.0	501	3	-.76	-22.82	-.472	22.834	b
Item 010.	1	.0	511	2	.0	-.204	.0	.204	b
Item 010.	2	710.743	513	3	4.649	19.214	.0	19.214	b
Item 010.	3	710.743	514	2	4.651	19.216	.0	19.216	b
Item 011.	1	30.0	462	3	-.011	.968	7.108	12.35	b
Item 011.	2	.0	421	3	-.011	.969	-7.104	12.343	b
Item 011.	3	.0	513	-1	.0	5.396	-1.919	6.338	b
Item 008.	2	350.0	501	1	-.908	-24.919	.157	24.921	a

Following beams do not have classifiable (and selected) points for proof of stresses:
upper crane (rigid 58; rigid 59; rigid 60; rigid 61;
rigid 62; rigid 63; rigid 64; rigid 65; rigid 66;
rigid 67; rigid 68; rigid 69; rigid 70; rigid 71;
rigid 72; rigid 73; rigid 74; rigid 75; rigid 76;
rigid 77; rigid 78; rigid 79; rigid 80; rigid 83;
rigid 84; rigid 85; rigid 86; rigid 87; rigid 88;
rigid 89; rigid 90)

description of load events
421: load case: in Service situation: W-015 S+045 Ka

1.5	* DL Total	28.03.2013 16:09	
1.5	* LL	28.03.2013 16:09	
.15	* LL	28.03.2013 16:09	
1.5	* SL	28.03.2013 16:09	

```
description of load events
 462:   load case:    in Service                  situation: W-015 S-020 Ka
          1.5     * DL Total                28.03.2013 16:09
          1.5     * LL                      28.03.2013 16:09
           .15    * LL                      28.03.2013 16:09
         -1.5     * SL                      28.03.2013 16:09
 501:   load case:    out of Service              situation: W+025 S+090 Ki
          1.65    * DL Total                28.03.2013 16:09
           .15    * LL                      28.03.2013 16:09
          1.5     * DR +x                   28.03.2013 16:09
 511:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
          1.21    * W 51,75m/s +x           28.03.2013 16:09
 512:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
         -1.21    * W 51,75m/s +x           28.03.2013 16:09
 513:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
          1.21    * W 51,75m/s +y           28.03.2013 16:09
 514:   load case:    out of Service              situation: W+025 S+090 Ki
          1.21    * DL Total                28.03.2013 16:09
         -1.21    * W 51,75m/s +y           28.03.2013 16:09
```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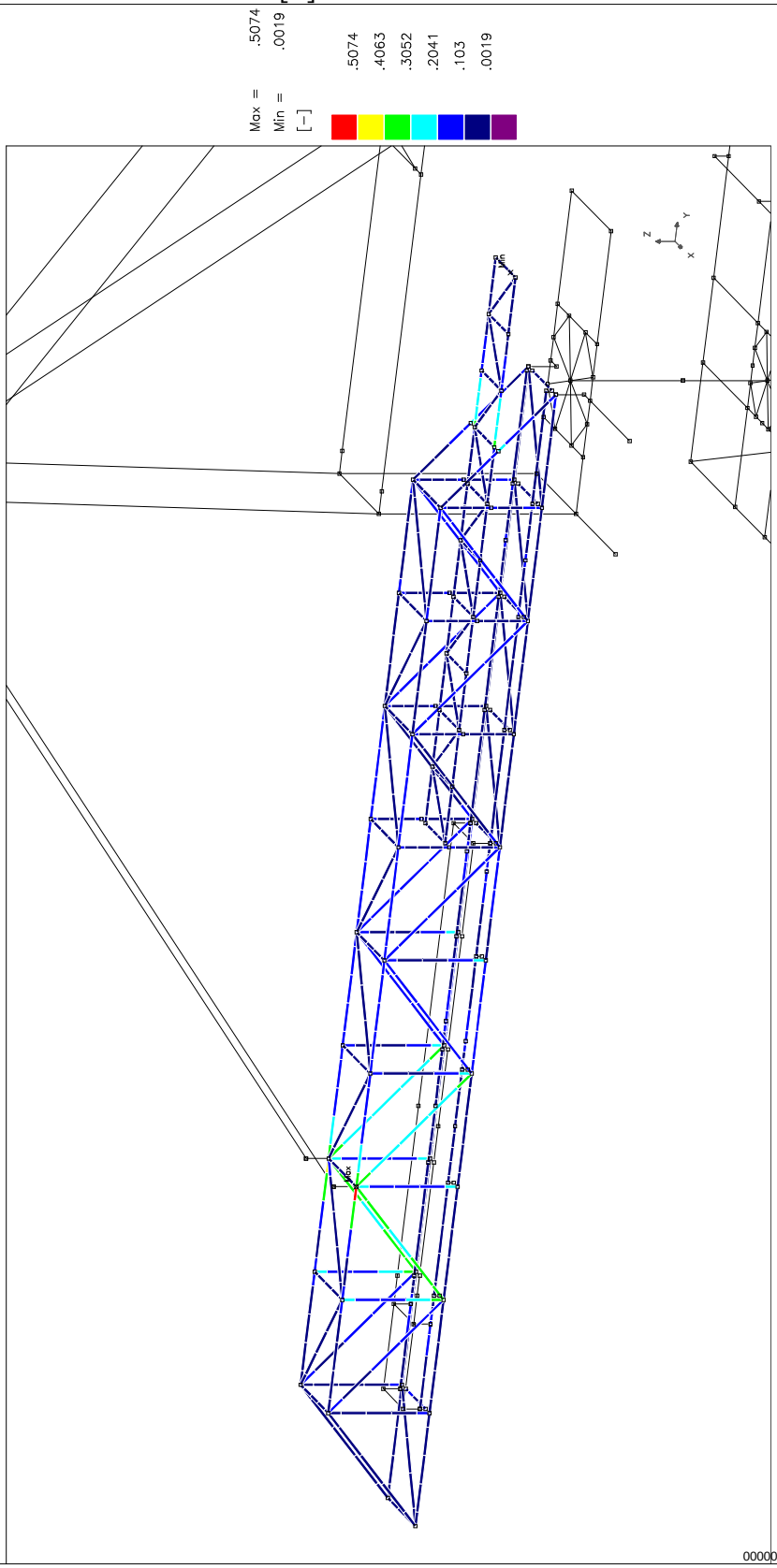
Lizenznehmer: Kühne BSB GmbH, Darmstadt

```
node display with node boxes;
beam display with beam axis;
colour contour, extr.-result: B4 K4 Boom P
    Proof of Fatigue DIN 15018
    Loading Group B4, Struct. Elem.
    Sigma
    output: extreme value per section
    consideration of: all sections
    eval. pattern acc.: [_Fatigue]
      26 considered load cases
Min =       .0019  Max =       .5074 [-]
```



00000 - MUSTER Schiffsbelader_V03_032.kpl

```
output date: 30.08.2013 11:44:01  [  0.515 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    proof: B4 K4 Boom T
    Proof of Fatigue DIN 15018
    Loading Group B4, Struct. Elem.
    Sigma
    output: extreme value per beam
    consideration of: all sections
    eval. pattern acc.: [_Fatigue]
      26 considered load cases
    load case: H1.                  LLF situation: W+000 S+000 Ka
    load case: H1.                  LLF situation: W+000 S+000 Ki
    load case: H1.                  LLF situation: W+000 S+000 Km
    load case: H1.                  LLF situation: W+000 S+030 Ka
    load case: H1.                  LLF situation: W+000 S+030 Ki
    load case: H1.                  LLF situation: W+000 S+045 Ka
    load case: H1.                  LLF situation: W+000 S+045 Ki
    load case: H1.                  LLF situation: W+000 S-020 Ka
    load case: H1.                  LLF situation: W+000 S-020 Ki
    load case: H1.                  LLF situation: W+010 S+000 Ka
    load case: H1.                  LLF situation: W+010 S+000 Ki
    load case: H1.                  LLF situation: W+010 S+030 Ka
    load case: H1.                  LLF situation: W+010 S+030 Ki
    load case: H1.                  LLF situation: W+010 S+045 Ka
    load case: H1.                  LLF situation: W+010 S+045 Ki
    load case: H1.                  LLF situation: W+010 S-020 Ka
    load case: H1.                  LLF situation: W+010 S-020 Ki
    load case: H1.                  LLF situation: W-015 S+000 Ka
    load case: H1.                  LLF situation: W-015 S+000 Ki
    load case: H1.                  LLF situation: W-015 S+030 Ka
    load case: H1.                  LLF situation: W-015 S+030 Ki
    load case: H1.                  LLF situation: W-015 S+045 Ka
    load case: H1.                  LLF situation: W-015 S+045 Ki
    load case: H1.                  LLF situation: W-015 S-020 Ka
    load case: H1.                  LLF situation: W-015 S-020 Ki
    load case: H2.                  LLF situation: W+025 S+090 Ki

    list of objects:
        list name: Boom                     list type: Beams, Simple List
        subsystems:boom;
        elements:

output of:
----------
beam                beam name
section             section                                     [cm]
pnt                 cross section point
W                   weld
nc                  notch condition
max sig             max sigma                                   [kN/cm²]
lpS                 load case s max
min sig             min sigma                                   [kN/cm²]
lps                 load case s min
kappa s             kappa sigma                                 [.]
adm sig             admissible sigma                            [kN/cm²]
uti sig             utilization sigma                           [-]
O                   kind of extreme value
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section
     p = extreme value per point

|section| < .1 [cm] = 0
|max sig| < .01 [kN/cm²] = 0
|min sig| < .01 [kN/cm²] = 0
|kappa s| < .001 [.] = 0
|adm sig| < .01 [kN/cm²] = 0
|uti sig| < .001 [-] = 0
```

beam	section	pntW	nc	max sig	lpS	min sig	lps	kappa s	adm sig	uti sig	O
boom											
Item 012. 50	20.0	4	K4	-1.852	101	-.718	88	.387	14.56	.127	b
Item 012. 51	134.536	1	K4	-2.535	10	-2.161	96	.852	18.0	.141	b
Item 012. 52	134.536	4	K4	-2.566	10	-2.201	87	.858	18.0	.143	b
Item 012. 53	200.0	1	K4	-.648	63	.598	90	-.922	5.618	.115	b
Item 012. 54	200.0	4	K4	-.734	54	.431	97	-.587	6.805	.108	b
Item 012. 55	.0	3	K4	-3.869	10	-2.872	101	.742	18.0	.215	b
Item 012. 56	.0	2	K4	-3.967	9	-3.03	101	.764	18.0	.22	b
Item 012. 57	.0	4	K4	-1.655	101	-.686	88	.415	14.925	.111	b
Item 012. 58	20.0	2	K4	-2.38	101	-.365	86	.153	12.029	.198	b
Item 013. 49	20.0	2	K4	.271	9	.0	56	.012	9.074	.03	b
Item 013. 50	.0	1	K4	1.117	14	.035	97	.032	9.194	.121	b
Item 013. 51	.0	2	K4	1.085	33	.277	12	.255	10.847	.1	b
Item 013. 52	.0	4	K4	1.326	69	.035	90	.027	9.162	.145	b
Item 013. 53	.0	3	K4	1.326	86	.031	97	.024	9.143	.145	b
Item 013. 54	.0	4	K4	.43	11	.159	58	.369	11.932	.036	b
Item 013. 55	.0	3	K4	.411	12	.137	97	.333	11.565	.036	b
Item 013. 56	.0	3	K4	1.117	10	.057	79	.051	9.315	.12	b
Item 013. 57	.0	4	K4	1.13	9	.076	88	.068	9.425	.12	b
Item 013. 58	.0	3	K4	.861	10	.217	95	.251	10.812	.08	b
Item 013. 59	.0	4	K4	.884	9	.243	88	.274	11.015	.08	b
Item 013. 60	20.0	2	K4	.595	12	.073	97	.122	9.796	.061	b
Item 013. 61	20.0	1	K4	.718	9	.153	56	.212	10.485	.069	b
Item 013. 62	20.0	4	K4	-.192	56	.085	97	-.443	7.483	.026	b
Item 013. 63	.0	3	K4	-5.775	93	-2.735	101	.474	15.783	.366	b
Item 013. 64	.0	1	K4	-2.358	93	-1.464	101	.621	18.0	.131	b
Item 013. 65	200.0	2	K4	-2.657	97	-2.031	56	.764	18.0	.148	b
Item 013. 66	.0	2	K4	-3.041	97	-2.302	56	.757	18.0	.169	b
Item 013. 67	.0	3	K4	-1.782	9	-1.266	101	.71	18.0	.099	b
Item 013. 68	.0	2	K4	-2.069	9	-1.343	101	.649	18.0	.115	b
Item 013. 69	.0	3	K4	-5.869	86	-2.797	101	.477	15.829	.371	b
Item 013. 70	.0	1	K4	-2.363	86	-1.485	101	.628	18.0	.131	b
Item 013. 71	200.0	2	K4	-2.743	90	-2.136	63	.779	18.0	.152	b
Item 013. 72	.0	2	K4	-3.06	90	-2.348	63	.767	18.0	.17	b
Item 013. 73	.0	3	K4	-1.804	10	-1.24	101	.688	18.0	.1	b
Item 013. 74	.0	2	K4	-2.072	10	-1.348	101	.65	18.0	.115	b
Item 013. 75	200.0	4	K4	-1.328	46	-.637	92	.479	15.872	.084	b
Item 013. 76	.0	4	K4	-1.556	61	-.67	12	.431	15.154	.103	b

beam	section	pntW	nc	max sig	lpS	min sig	lps	kappa s	adm sig	uti sig	O
Item 013. 77	.0	1	K4	1.447	9	.552	56	.381	12.068	.12	b
Item 013. 78	200.0	1	K4	1.175	90	.279	63	.237	10.692	.11	b
Item 013. 79	.0	2	K4	.453	82	-.24	55	-.529	6.653	.068	b
Item 013. 80	200.0	1	K4	.773	90	.196	63	.253	10.827	.071	b
Item 013. 81	200.0	1	K4	-1.185	61	-.406	12	.342	13.995	.085	b
Item 013. 82	200.0	1	K4	-1.332	53	-.641	99	.481	15.903	.084	b
Item 013. 83	.0	1	K4	-1.538	54	-.661	11	.43	15.135	.102	b
Item 013. 84	.0	4	K4	1.477	10	.567	63	.384	12.098	.122	b
Item 013. 85	200.0	4	K4	1.25	81	.364	56	.291	11.167	.112	b
Item 013. 86	200.0	4	K4	.69	73	.104	56	.15	10.003	.069	b
Item 013. 87	200.0	4	K4	.967	97	.288	56	.298	11.229	.086	b
Item 013. 88	200.0	4	K4	-1.286	54	-.388	11	.301	13.515	.095	b
Item 013. 89	200.0	2	K4	6.52	69	3.045	101	.467	13.069	.499	b
Item 013. 90	200.0	2	K4	6.643	86	3.115	101	.469	13.093	.507	b
Item 013. 91	.0	1	K4	.955	29	.045	58	.047	9.29	.103	b
Item 013. 92	.0	4	K4	.948	22	.029	65	.031	9.189	.103	b
Item 013. 93	20.0	1	K4	1.155	1	.086	90	.074	9.468	.122	b
Item 013. 94	200.0	3	K4	.181	94	-.146	10	-.805	5.856	.031	b
Item 013. 95	200.0	2	K4	.174	85	-.144	10	-.828	5.8	.03	b
Item 013. 96	.0	3	K4	.142	46	.015	90	.106	9.684	.015	b
Item 013. 97	200.0	1	K4	1.536	93	.587	101	.382	12.079	.127	b
Item 013. 98	.0	2	K4	.142	53	.015	97	.108	9.7	.015	b
Item 013. 99	200.0	1	K4	1.544	86	.619	101	.401	12.279	.126	b
Item 013. 100	20.0	2	K4	.985	26	.209	11	.212	10.485	.094	b
Item 013. 101	.0	1	K4	.5	9	.03	56	.059	9.369	.053	b
Item 013. 102	.0	1	K4	.556	9	.0	56	.009	9.055	.061	b
Item 013. 103	.0	4	K4	-.224	56	.114	97	-.507	7.167	.031	b
Item 013. 104	.0	1	K4	1.089	29	.084	92	.077	9.485	.115	b
Item 013. 105	100.0	2	K4	1.049	97	.306	12	.291	11.169	.094	b
Item 013. 106	20.0	4	K4	.538	54	.029	97	.054	9.339	.058	b
Item 013. 107	.0	1	K4	.669	10	.226	63	.338	11.619	.058	b
Item 014. 1	.0	4	K4	1.896	93	.916	101	.483	13.276	.143	b
Item 014. 2	90.0	2	K4	.68	9	-.09	101	-.133	8.267	.082	b
Item 014. 3	.0	2	K4	.915	101	.061	9	.066	9.416	.097	b
Item 014. 4	.0	3	K4	1.628	9	.455	96	.279	11.059	.147	b
Item 014. 5	.0	1	K4	1.969	86	1.006	101	.511	13.653	.144	b
Item 014. 6	90.0	3	K4	.811	10	-.046	101	-.057	8.669	.094	b
Item 014. 7	.0	3	K4	1.017	101	.067	10	.066	9.411	.108	b
Item 014. 8	.0	2	K4	1.917	10	.725	87	.378	12.033	.159	b
Item 014. 9	.0	2	K4	2.108	90	1.486	63	.705	16.981	.124	b
Item 014. 10	.0	3	K4	2.66	93	1.825	101	.686	16.589	.16	b
Item 014. 11	90.0	4	K4	2.374	97	1.639	101	.691	16.679	.142	b
Item 014. 12	.0	2	K4	2.097	9	1.414	101	.674	16.347	.128	b
Item 014. 13	.0	2	K4	2.059	86	1.299	101	.631	15.531	.133	b
Item 014. 14	.0	2	K4	2.161	86	1.418	101	.656	15.997	.135	b
Item 014. 15	.0	2	K4	2.555	98	1.698	101	.665	16.158	.158	b
Item 014. 16	.0	3	K4	2.05	10	1.365	101	.666	16.183	.127	b
Item 015. 12	.0	3	K4	2.42	9	.649	56	.268	10.959	.221	b
Item 015. 13	.0	1	K4	3.792	9	1.983	101	.523	13.816	.274	b
Item 015. 14	.0	1	K4	2.597	9	.302	79	.116	9.756	.266	b
Item 015. 15	.0	2	K4	2.187	10	.46	63	.21	10.467	.209	b
Item 015. 16	269.072	2	K4	5.484	10	3.419	101	.623	15.4	.356	b
Item 015. 17	.0	1	K4	-1.812	58	.132	11	-.073	10.068	.18	b
Item 015. 18	.0	4	K4	.96	54	-.414	11	-.432	6.989	.137	b
Item 015. 19	.0	2	K4	1.626	102	.889	11	.547	14.161	.115	b
Item 015. 20	.0	4	K4	-2.578	98	-1.821	11	.706	18.0	.143	b
Item 015. 21	269.072	3	K4	2.813	10	2.322	39	.825	18.0	.156	b
Item 015. 22	269.072	3	K4	5.43	9	3.382	101	.623	15.39	.353	b
Item 015. 23	.0	4	K4	-1.7	65	.24	12	-.141	9.464	.18	b
Item 015. 24	269.072	3	K4	1.274	37	.0	12	.005	9.031	.141	b
Item 015. 25	.0	3	K4	1.647	102	.934	12	.567	14.472	.114	b
Item 015. 26	.0	4	K4	-2.59	89	-1.872	12	.723	18.0	.144	b
Item 015. 27	.0	3	K4	2.756	9	2.402	96	.872	18.0	.153	b
Item 015. 28	.0	4	K4	-1.297	94	-.393	101	.303	13.534	.096	b
Item 015. 29	.0	2	K4	-.897	77	-.533	101	.594	17.875	.05	b
Item 015. 30	.0	1	K4	-.818	10	-.563	101	.689	18.0	.045	b
Item 015. 31	244.131	1	K4	-.852	26	-.742	64	.871	18.0	.047	b
Item 015. 32	.0	1	K4	-.666	9	-.44	101	.66	18.0	.037	b
Item 015. 33	244.131	1	K4	-.763	10	-.542	63	.711	18.0	.042	b
Item 015. 34	244.131	4	K4	.395	90	.07	63	.178	10.213	.039	b
Item 015. 35	244.131	1	K4	-.648	61	-.205	12	.316	13.688	.047	b
Item 015. 36	.0	3	K4	.461	58	.196	95	.425	12.562	.037	b
Item 015. 37	140.0	1	K4	-.287	85	-.02	67	.069	11.318	.025	b
Item 015. 38	244.131	4	K4	1.91	94	.87	101	.456	12.925	.148	b
Item 015. 39	.0	2	K4	4.081	85	1.095	101	.268	10.961	.372	b
Item 015. 40	.0	3	K4	4.185	78	1.16	101	.277	11.041	.379	b
Item 015. 41	.0	3	K4	.182	99	-.05	54	-.275	7.605	.024	b
Item 015. 42	140.0	2	K4	-.277	53	-.073	99	.265	13.115	.021	b
Item 015. 43	.0	1	K4	1.044	21	.052	101	.05	9.311	.112	b
Item 015. 44	.0	4	K4	1.075	30	.073	101	.068	9.427	.114	b
Item 015. 45	244.131	4	K4	.204	76	.0	39	-.002	8.989	.023	b
Item 015. 46	244.131	2	K4	.155	85	-.145	101	-.937	5.54	.028	b
Item 015. 47	269.073	3	K4	-2.408	21	-.59	99	.245	12.906	.187	b
Item 015. 48	269.073	2	K4	-2.429	14	-.61	92	.251	12.972	.187	b
Item 015. 49	.0	3	K4	.317	10	-.058	61	-.183	8.023	.04	b
Item 015. 50	140.0	3	K4	.562	10	.274	101	.488	13.345	.042	b
Item 015. 51	.0	3	K4	.437	9	.22	101	.502	13.53	.032	b
Item 015. 52	140.0	4	K4	.357	10	.087	71	.243	10.741	.033	b
Item 015. 53	140.0	3	K4	.433	10	.19	63	.438	12.711	.034	b
Item 015. 54	.0	3	K4	.477	97	.253	56	.531	13.932	.034	b
Item 015. 55	140.0	3	K4	.385	10	.247	101	.641	15.712	.025	b
Item 015. 56	140.0	2	K4	-.504	61	-.318	92	.631	18.0	.028	b
Item 015. 57	269.072	2	K4	4.719	94	1.718	101	.364	11.884	.397	b
Item 015. 58	269.072	3	K4	4.568	69	1.621	101	.355	11.789	.387	b
Item 015. 59	.0	4	K4	3.853	10	2.022	101	.525	13.843	.278	b
Item 015. 60	.0	4	K4	2.361	10	.125	88	.053	9.33	.253	b
Item 016. 11	.0	3	K4	-.427	9	-.29	101	.68	18.0	.024	b
Item 016. 12	100.0	1	K4	-.567	94	-.368	101	.648	18.0	.031	b
Item 016. 13	100.0	4	K4	-1.028	85	-.792	101	.771	18.0	.057	b
Item 016. 14	100.0	1	K4	-1.046	78	-.805	101	.77	18.0	.058	b
Item 016. 15	.0	3	K4	5.999	26	5.082	101	.847	18.0	.333	b
Item 016. 16	.0	2	K4	3.458	17	3.158	101	.913	18.0	.192	b
Item 016. 17	.0	3	K4	1.294	49	1.203	80	.93	18.0	.072	b
Item 016. 18	.0	2	K4	6.118	33	5.247	101	.858	18.0	.34	b
Item 016. 19	.0	3	K4	3.473	6	3.149	101	.907	18.0	.193	b
Item 016. 20	.0	4	K4	-1.298	33	-1.143	101	.88	18.0	.072	b
Item 016. 21	150.0	1	K4	1.76	77	-.017	60	-.01	8.941	.197	b
Item 016. 22	200.0	1	K4	-1.058	22	-.27	99	.255	13.014	.081	b
Item 016. 23	.0	4	K4	-.935	13	-.343	90	.367	14.304	.065	b
Item 016. 24	50.0	1	K4	1.668	9	.0	47	.003	9.018	.185	b
Item 016. 25	150.0	4	K4	1.585	73	.143	56	.09	9.576	.166	b
Item 016. 26	.0	2	K4	-.478	38	.396	89	-.827	5.91	.081	b

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Lizenznehmer: Kühne BSB GmbH, Darmstadt

beam	section	pntW	nc	max sig	lpS	min sig	lps	kappa s	adm sig	uti sig	O
Item 016. 27	200.0	4	K4	.746	97	.083	56	.111	9.717	.077	b
Item 016. 28	100.0	4	K4	1.057	9	-.425	54	-.402	7.096	.149	b
Item 016. 29	200.0	4	K4	-.628	54	.412	97	-.657	6.517	.096	b
Item 016. 30	150.0	4	K4	1.704	86	-.061	99	-.036	8.79	.194	b
Item 016. 31	200.0	4	K4	-1.078	29	-.293	92	.272	13.195	.082	b
Item 016. 32	.0	1	K4	-.909	22	-.315	97	.346	14.042	.065	b
Item 016. 33	50.0	4	K4	1.654	10	.0	56	.001	9.007	.184	b
Item 016. 34	150.0	1	K4	1.554	82	.108	63	.07	9.438	.165	b
Item 016. 35	.0	2	K4	-.551	54	.318	97	-.577	6.847	.08	b
Item 016. 36	200.0	1	K4	.514	90	.013	47	.026	9.157	.056	b
Item 016. 37	100.0	1	K4	1.031	10	-.437	61	-.424	7.017	.147	b
Item 016. 38	200.0	1	K4	.455	90	-.392	39	-.861	5.717	.08	b
Item 016. 39	.0	4	K4	1.585	73	.143	56	.09	9.576	.166	b
Item 016. 40	.0	1	K4	1.554	82	.108	63	.07	9.438	.165	b
Item 016. 41	.0	1	K4	-.388	46	.217	11	-.559	6.926	.056	b
Item 016. 42	.0	4	K4	-.398	61	.222	12	-.558	6.931	.057	b
Item 016. 43	.0	1	K4	1.76	77	-.017	60	-.01	8.941	.197	b
Item 016. 44	.0	4	K4	1.704	86	-.061	99	-.036	8.79	.194	b
Item 016. 45	.0	1	K4	1.668	9	.0	47	.003	9.018	.185	b
Item 016. 46	.0	4	K4	1.654	10	.0	56	.001	9.007	.184	b
Item 016. 47	.0	4	K4	1.065	9	-.425	54	-.399	7.108	.15	b
Item 016. 48	.0	1	K4	1.034	10	-.437	61	-.422	7.022	.147	b
Item 016. 49	.0	2	K4	-.95	93	-.638	101	.671	18.0	.053	b
Item 016. 50	.0	3	K4	-.863	86	-.554	101	.642	18.0	.048	b
Item 016. 51	.0	2	K4	-.6	93	-.431	101	.717	18.0	.033	b
Item 016. 52	.0	3	K4	-.717	90	-.517	101	.72	18.0	.04	b
Item 016. 53	.0	2	K4	-1.018	9	-.711	101	.698	18.0	.057	b
Item 016. 54	.0	3	K4	-.779	10	-.527	101	.677	18.0	.043	b
Item 016. 55	100.0	4	K4	-2.096	10	-1.705	101	.814	18.0	.116	b
Item 016. 56	100.0	4	K4	-2.252	54	-1.552	75	.689	18.0	.125	b
Item 016. 57	100.0	4	K4	-.468	81	-.325	101	.693	18.0	.026	b
Item 016. 58	100.0	1	K4	-.358	70	-.232	101	.649	18.0	.02	b
Item 017. 1	100.0	1	K4	.573	86	.081	63	.141	9.931	.058	b
Item 017. 2	100.0	3	K4	.473	77	.107	56	.227	10.601	.045	b
Item 017. 3	100.0	3	K4	-.362	12	-.055	85	.153	12.027	.03	b
Item 017. 4	100.0	3	K4	-.56	101	-.201	90	.36	14.21	.039	b
Item 017. 5	.0	1	K4	-1.081	61	-.732	92	.677	18.0	.06	b
Item 017. 6	.0	1	K4	-.259	86	-.062	101	.239	12.845	.02	b
Item 017. 7	100.0	3	K4	.143	89	-.01	101	-.071	8.593	.017	b
Item 017. 8	100.0	1	K4	.15	101	.023	89	.154	10.03	.015	b
Item 017. 9	100.0	1	K4	-.145	90	.018	101	-.126	9.587	.015	b
Item 017. 10	.0	3	K4	.075	74	-.041	101	-.548	6.593	.011	b
Item 017. 11	100.0	2	K4	.069	101	-.04	69	-.576	6.504	.011	b
Item 018. 1	.0	3	K4	.493	22	.249	71	.506	13.586	.036	b
Item 018. 2	.0	1	K4	-.434	86	-.226	101	.52	16.525	.026	b
Item 018. 3	141.421	2	K4	-.417	89	-.215	40	.516	16.461	.025	b
Item 018. 4	141.421	3	K4	.273	75	.116	62	.423	12.537	.022	b
Item 018. 5	141.421	3	K4	.278	101	.148	89	.531	13.928	.02	b
Item 018. 6	141.421	2	K4	-.667	37	-.516	92	.774	18.0	.037	b
Item 018. 7	.0	3	K4	.442	61	.148	88	.335	11.592	.038	b
Item 018. 8	.0	1	K4	-.863	13	-.696	88	.806	18.0	.048	b
Item 018. 9	.0	2	K4	-.672	81	-.493	101	.734	18.0	.037	b
Item 018. 10	.0	4	K4	.397	102	.287	95	.722	17.342	.023	b
Item 013. 90	200.0	2	K4	6.643	86	3.115	101	.469	13.093	.507	a

```
Following beams do not have classifiable (and selected) points for proof of stresses:
    boom ( rigid   1; rigid   2; rigid   3; rigid   4;
       rigid   5; rigid   6; rigid   7; rigid   8; rigid   9;
       rigid  10; rigid  11; rigid  12; rigid  13; rigid  14;
       rigid  15; rigid  16; rigid  17; rigid  18; rigid  19;
       rigid  20; rigid  21; rigid  22; rigid  23; rigid  24;
       rigid  25; rigid  26; rigid  27; rigid  28; rigid  29;
       rigid  30; rigid  31; rigid  32)


description of load events
 1:     load case:    H1.                        situation: W+000 S+000 Ka
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
          1.0     * SL                      28.03.2013 16:08
 6:     load case:    H1.                        situation: W+000 S+000 Ki
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
         -1.0     * SL                      28.03.2013 16:08
 9:     load case:    H1.                        situation: W+000 S+000 Km
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
          1.0     * SL                      28.03.2013 16:08
 10:    load case:    H1.                        situation: W+000 S+000 Km
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
         -1.0     * SL                      28.03.2013 16:08
 11:    load case:    H1.                        situation: W+000 S+000 Km
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
          -.1     * LL                      28.03.2013 16:08
          1.0     * SL                      28.03.2013 16:08
 12:    load case:    H1.                        situation: W+000 S+000 Km
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
          -.1     * LL                      28.03.2013 16:08
         -1.0     * SL                      28.03.2013 16:08
 13:    load case:    H1.                        situation: W+000 S+030 Ka
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
          1.0     * SL                      28.03.2013 16:08
 14:    load case:    H1.                        situation: W+000 S+030 Ka
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
         -1.0     * SL                      28.03.2013 16:08
 17:    load case:    H1.                        situation: W+000 S+030 Ki
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
          1.0     * SL                      28.03.2013 16:08
```

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description of load events
 21:    load case:    H1.                        situation: W+000 S+045 Ka
          1.0     * DL Total                 28.03.2013 16:08
          1.0     * LL                       28.03.2013 16:08
           .1     * LL                       28.03.2013 16:08
          1.0     * SL                       28.03.2013 16:08
 22:    load case:    H1.                        situation: W+000 S+045 Ka
          1.0     * DL Total                 28.03.2013 16:08
          1.0     * LL                       28.03.2013 16:08
           .1     * LL                       28.03.2013 16:08
         -1.0     * SL                       28.03.2013 16:08
 26:    load case:    H1.                        situation: W+000 S+045 Ki
          1.0     * DL Total                 28.03.2013 16:08
          1.0     * LL                       28.03.2013 16:08
           .1     * LL                       28.03.2013 16:08
         -1.0     * SL                       28.03.2013 16:08
 29:    load case:    H1.                        situation: W+000 S-020 Ka
          1.0     * DL Total                 28.03.2013 16:08
          1.0     * LL                       28.03.2013 16:08
           .1     * LL                       28.03.2013 16:08
          1.0     * SL                       28.03.2013 16:08
 30:    load case:    H1.                        situation: W+000 S-020 Ka
          1.0     * DL Total                 28.03.2013 16:08
          1.0     * LL                       28.03.2013 16:08
           .1     * LL                       28.03.2013 16:08
         -1.0     * SL                       28.03.2013 16:08
 33:    load case:    H1.                        situation: W+000 S-020 Ki
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
           .1     * LL                       28.03.2013 16:09
          1.0     * SL                       28.03.2013 16:09
 37:    load case:    H1.                        situation: W+010 S+000 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
           .1     * LL                       28.03.2013 16:09
          1.0     * SL                       28.03.2013 16:09
 38:    load case:    H1.                        situation: W+010 S+000 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
           .1     * LL                       28.03.2013 16:09
         -1.0     * SL                       28.03.2013 16:09
 39:    load case:    H1.                        situation: W+010 S+000 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
          -.1     * LL                       28.03.2013 16:09
          1.0     * SL                       28.03.2013 16:09
 40:    load case:    H1.                        situation: W+010 S+000 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
          -.1     * LL                       28.03.2013 16:09
         -1.0     * SL                       28.03.2013 16:09
 46:    load case:    H1.                        situation: W+010 S+030 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
           .1     * LL                       28.03.2013 16:09
         -1.0     * SL                       28.03.2013 16:09
 47:    load case:    H1.                        situation: W+010 S+030 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
          -.1     * LL                       28.03.2013 16:09
          1.0     * SL                       28.03.2013 16:09
 49:    load case:    H1.                        situation: W+010 S+030 Ki
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
           .1     * LL                       28.03.2013 16:09
          1.0     * SL                       28.03.2013 16:09
 53:    load case:    H1.                        situation: W+010 S+045 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
           .1     * LL                       28.03.2013 16:09
          1.0     * SL                       28.03.2013 16:09
 54:    load case:    H1.                        situation: W+010 S+045 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
           .1     * LL                       28.03.2013 16:09
         -1.0     * SL                       28.03.2013 16:09
 55:    load case:    H1.                        situation: W+010 S+045 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
          -.1     * LL                       28.03.2013 16:09
          1.0     * SL                       28.03.2013 16:09
 56:    load case:    H1.                        situation: W+010 S+045 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
          -.1     * LL                       28.03.2013 16:09
         -1.0     * SL                       28.03.2013 16:09
 58:    load case:    H1.                        situation: W+010 S+045 Ki
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
           .1     * LL                       28.03.2013 16:09
         -1.0     * SL                       28.03.2013 16:09
 60:    load case:    H1.                        situation: W+010 S+045 Ki
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
          -.1     * LL                       28.03.2013 16:09
         -1.0     * SL                       28.03.2013 16:09
 61:    load case:    H1.                        situation: W+010 S-020 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
           .1     * LL                       28.03.2013 16:09
          1.0     * SL                       28.03.2013 16:09
 62:    load case:    H1.                        situation: W+010 S-020 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
           .1     * LL                       28.03.2013 16:09
         -1.0     * SL                       28.03.2013 16:09
 63:    load case:    H1.                        situation: W+010 S-020 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
          -.1     * LL                       28.03.2013 16:09
          1.0     * SL                       28.03.2013 16:09
 64:    load case:    H1.                        situation: W+010 S-020 Ka
          1.0     * DL Total                 28.03.2013 16:09
          1.0     * LL                       28.03.2013 16:09
```


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```
description of load events
          -.1     * LL                        28.03.2013 16:09
         -1.0     * SL                        28.03.2013 16:09
 65:    load case:    H1.                          situation: W+010 S-020 Ki
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 67:    load case:    H1.                          situation: W+010 S-020 Ki
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
          -.1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 69:    load case:    H1.                          situation: W-015 S+000 Ka
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 70:    load case:    H1.                          situation: W-015 S+000 Ka
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
         -1.0     * SL                        28.03.2013 16:09
 71:    load case:    H1.                          situation: W-015 S+000 Ka
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
          -.1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 73:    load case:    H1.                          situation: W-015 S+000 Ki
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 74:    load case:    H1.                          situation: W-015 S+000 Ki
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
         -1.0     * SL                        28.03.2013 16:09
 75:    load case:    H1.                          situation: W-015 S+000 Ki
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
          -.1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 76:    load case:    H1.                          situation: W-015 S+000 Ki
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
          -.1     * LL                        28.03.2013 16:09
         -1.0     * SL                        28.03.2013 16:09
 77:    load case:    H1.                          situation: W-015 S+030 Ka
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 78:    load case:    H1.                          situation: W-015 S+030 Ka
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
         -1.0     * SL                        28.03.2013 16:09
 79:    load case:    H1.                          situation: W-015 S+030 Ka
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
          -.1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 80:    load case:    H1.                          situation: W-015 S+030 Ka
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
          -.1     * LL                        28.03.2013 16:09
         -1.0     * SL                        28.03.2013 16:09
 81:    load case:    H1.                          situation: W-015 S+030 Ki
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 82:    load case:    H1.                          situation: W-015 S+030 Ki
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
         -1.0     * SL                        28.03.2013 16:09
 85:    load case:    H1.                          situation: W-015 S+045 Ka
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 86:    load case:    H1.                          situation: W-015 S+045 Ka
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
         -1.0     * SL                        28.03.2013 16:09
 87:    load case:    H1.                          situation: W-015 S+045 Ka
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
          -.1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 88:    load case:    H1.                          situation: W-015 S+045 Ka
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
          -.1     * LL                        28.03.2013 16:09
         -1.0     * SL                        28.03.2013 16:09
 89:    load case:    H1.                          situation: W-015 S+045 Ki
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
          1.0     * SL                        28.03.2013 16:09
 90:    load case:    H1.                          situation: W-015 S+045 Ki
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
           .1     * LL                        28.03.2013 16:09
         -1.0     * SL                        28.03.2013 16:09
 92:    load case:    H1.                          situation: W-015 S+045 Ki
          1.0     * DL Total                  28.03.2013 16:09
          1.0     * LL                        28.03.2013 16:09
          -.1     * LL                        28.03.2013 16:09
         -1.0     * SL                        28.03.2013 16:09
```


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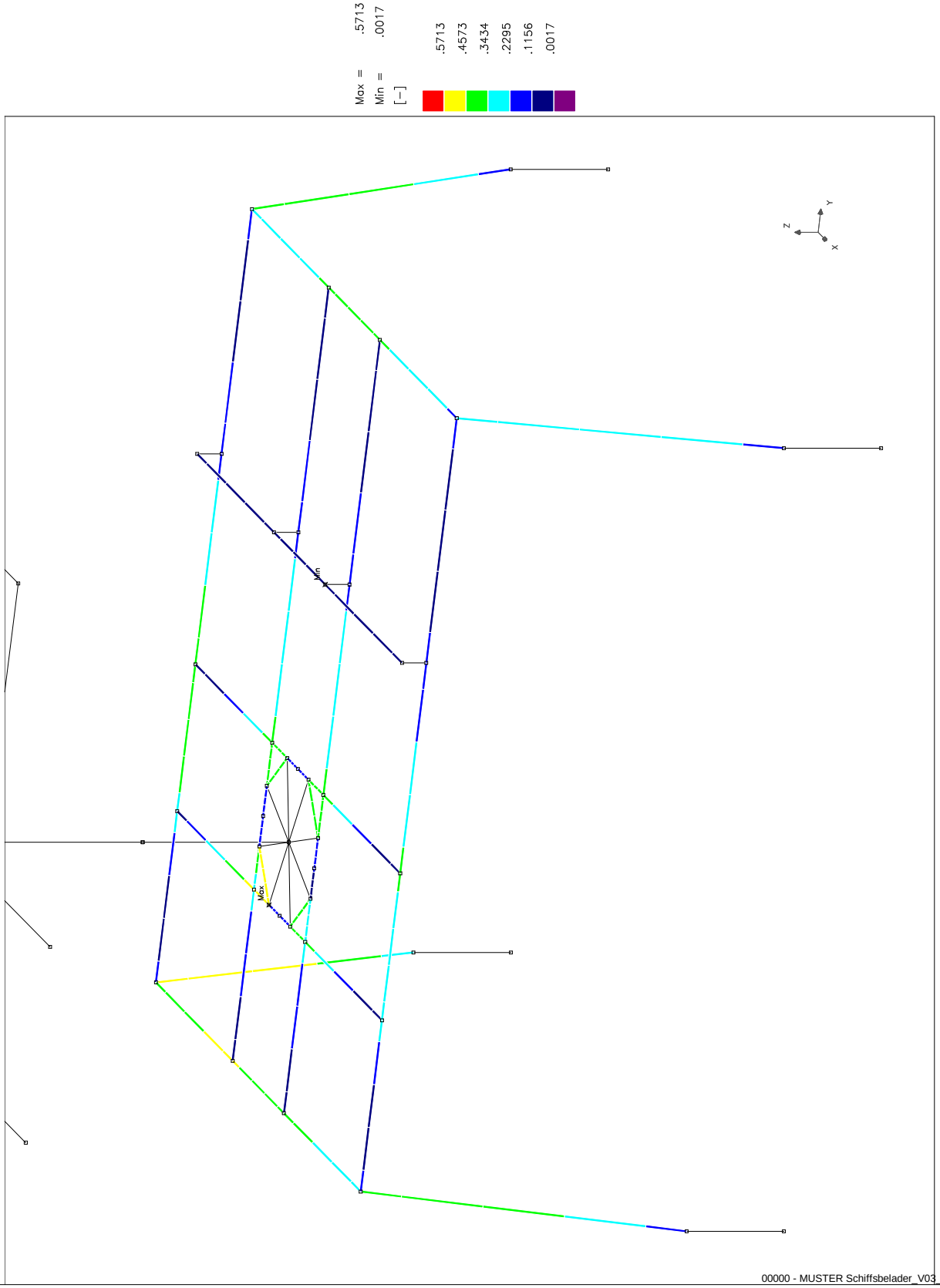
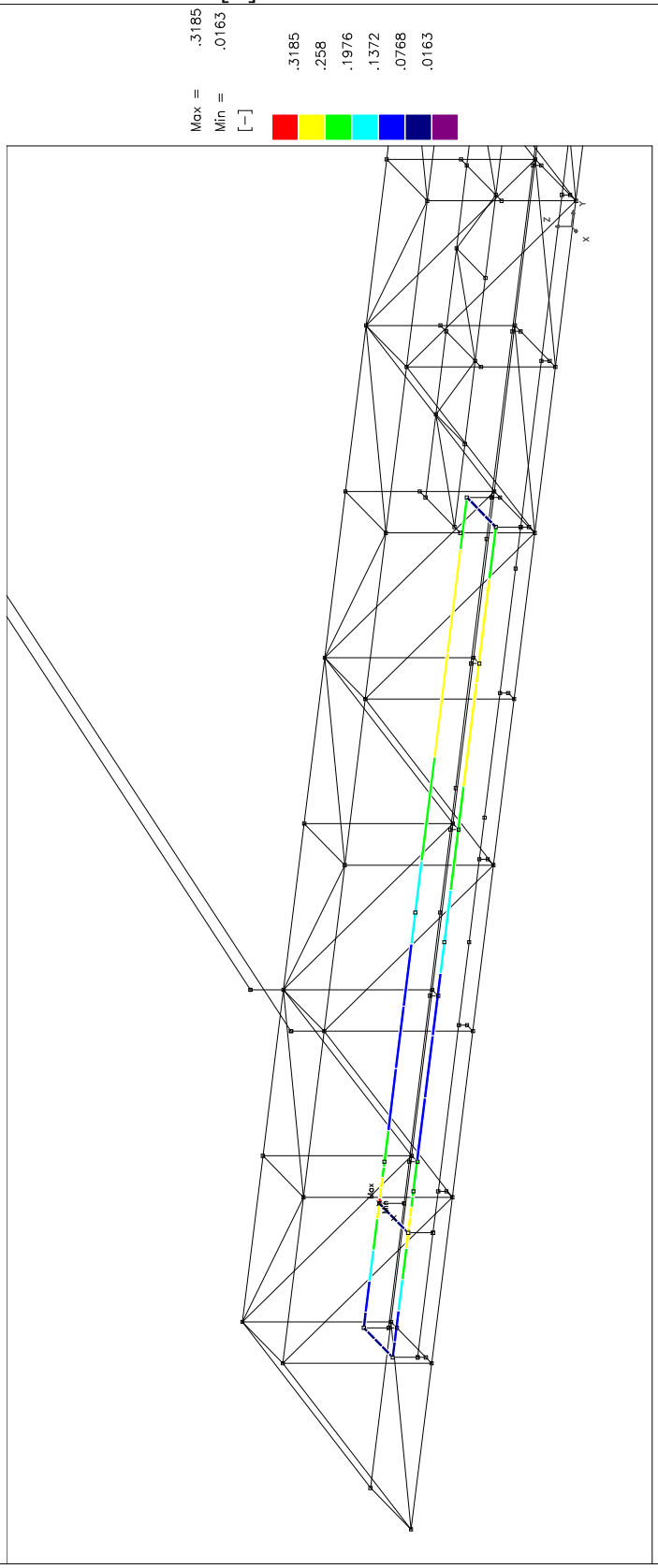
```
description of load events
 93:    load case:    H1.                        situation: W-015 S-020 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 94:    load case:    H1.                        situation: W-015 S-020 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 95:    load case:    H1.                        situation: W-015 S-020 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 96:    load case:    H1.                        situation: W-015 S-020 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 97:    load case:    H1.                        situation: W-015 S-020 Ki
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 98:    load case:    H1.                        situation: W-015 S-020 Ki
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 99:    load case:    H1.                        situation: W-015 S-020 Ki
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 101:   load case:    H2.                        situation: W+025 S+090 Ki
          1.1     * DL Total                28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * DR +x                   28.03.2013 16:09
 102:   load case:    H2.                        situation: W+025 S+090 Ki
          1.1     * DL Total                28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * DR +x                   28.03.2013 16:09
```

```
node display with node boxes;
beam display with beam axis;
colour contour, extr.-result: B4 K4 Portal P
    Proof of Fatigue DIN 15018
    Loading Group B4, Struct. Elem.
    Sigma
    output: extreme value per section
    consideration of: all sections
    eval. pattern acc.: [_Fatigue]
      26 considered load cases
Min =       .0017  Max =       .5713 [-]
```



```
node display with node boxes;
beam display with beam axis;
colour contour, extr.-result: B4 K4 Trolley P
    Proof of Fatigue DIN 15018
    Loading Group B4, Struct. Elem.
    Sigma
    output: extreme value per section
    consideration of: all sections
    eval. pattern acc.: [_Fatigue]
      26 considered load cases
Min =       .0163  Max =       .3185 [-]
```



00000 - MUSTER Schiffsbelader_V03_028.kpl

```
output date:  2.09.2013  9:53:55  [  0.421 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    proof: B4 K4 Trolley T
    Proof of Fatigue DIN 15018
    Loading Group B4, Struct. Elem.
    Sigma
    output: extreme value per beam
    consideration of: all sections
    eval. pattern acc.: [_Fatigue]
      26 considered load cases
    load case: H1.                  LLF situation: W+000 S+000 Ka
    load case: H1.                  LLF situation: W+000 S+000 Ki
    load case: H1.                  LLF situation: W+000 S+000 Km
    load case: H1.                  LLF situation: W+000 S+030 Ka
    load case: H1.                  LLF situation: W+000 S+030 Ki
    load case: H1.                  LLF situation: W+000 S+045 Ka
    load case: H1.                  LLF situation: W+000 S+045 Ki
    load case: H1.                  LLF situation: W+000 S-020 Ka
    load case: H1.                  LLF situation: W+000 S-020 Ki
    load case: H1.                  LLF situation: W+010 S+000 Ka
    load case: H1.                  LLF situation: W+010 S+000 Ki
    load case: H1.                  LLF situation: W+010 S+030 Ka
    load case: H1.                  LLF situation: W+010 S+030 Ki
    load case: H1.                  LLF situation: W+010 S+045 Ka
    load case: H1.                  LLF situation: W+010 S+045 Ki
    load case: H1.                  LLF situation: W+010 S-020 Ka
    load case: H1.                  LLF situation: W+010 S-020 Ki
    load case: H1.                  LLF situation: W-015 S+000 Ka
    load case: H1.                  LLF situation: W-015 S+000 Ki
    load case: H1.                  LLF situation: W-015 S+030 Ka
    load case: H1.                  LLF situation: W-015 S+030 Ki
    load case: H1.                  LLF situation: W-015 S+045 Ka
    load case: H1.                  LLF situation: W-015 S+045 Ki
    load case: H1.                  LLF situation: W-015 S-020 Ka
    load case: H1.                  LLF situation: W-015 S-020 Ki
    load case: H2.                  LLF situation: W+025 S+090 Ki

    list of objects:
        list name: Item 019.                list type: Beams, Filter List
        elements:
          trolley (Item 019.   1;Item 019.   2;Item 019.   3;
                   Item 019.   4;Item 019.   5;Item 019.   6;
                   Item 019.   7;Item 019.   8;Item 019.   9;
                   Item 019.  10;Item 019.  11)

output of:
----------
beam                beam name
section             section                                   [mm]
pnt                 cross section point
W                   weld
nc                  notch condition
max sig             max sigma                                 [N/mm²]
lpS                 load case s max
min sig             min sigma                                 [N/mm²]
lps                 load case s min
kappa s             kappa sigma                               [.]
adm sig             admissible sigma                          [N/mm²]
uti sig             utilization sigma                         [-]
O                   kind of extreme value
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section
     p = extreme value per point

|section| < 1.0 [mm] = 0
|max sig| < .1 [N/mm²] = 0
|min sig| < .1 [N/mm²] = 0
|kappa s| < .001 [.] = 0
|adm sig| < .1 [N/mm²] = 0
|uti sig| < .001 [-] = 0


 beam                section  pntW nc  max sig  lpS  min sig  lps  kappa s  adm sig  uti sig  O

trolley
 Item 019.   1         1.5E+03   3  K4    34.66    77    9.979  101     .288  111.379     .311 b
 Item 019.   2         1.5E+03   2  K4    34.204   94    9.542  101     .279  110.564     .309 b
 Item 019.   3            .0     2  K4    34.364   94    8.769  101     .255  108.45      .317 b
 Item 019.   4            .0     2  K4    34.534   94    8.807  101     .255  108.435     .318 b
 Item 019.   5         2.5E+03   4  K4    29.082   93    5.744  101     .198  103.649     .281 b
 Item 019.   6         2.5E+03   4  K4    28.873   94    5.713  101     .198  103.676     .278 b
 Item 019.   7            .0     2  K4    -4.386   22    2.508    9    -.572   68.713     .064 b
 Item 019.   8         1.0E+03   3  K4    -2.18    58    1.947   11    -.893   57.047     .038 b
 Item 019.   9            .0     3  K4    -4.514   29    -.482   12     .107  116.268     .039 b
 Item 019.  10            .0     2  K4    23.42    93    3.553  101     .152  100.127     .234 b
 Item 019.  11            .0     2  K4    23.515   70    3.588  101     .153  100.191     .235 b
 Item 019.   4            .0     2  K4    34.534   94    8.807  101     .255  108.435     .318 a


description of load events
 9:     load case:    H1.                          situation: W+000 S+000 Km
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
          1.0     * SL                      28.03.2013 16:08
 11:    load case:    H1.                          situation: W+000 S+000 Km
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
          -.1     * LL                      28.03.2013 16:08
          1.0     * SL                      28.03.2013 16:08
 12:    load case:    H1.                          situation: W+000 S+000 Km
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
          -.1     * LL                      28.03.2013 16:08
         -1.0     * SL                      28.03.2013 16:08
 22:    load case:    H1.                          situation: W+000 S+045 Ka
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
```

```
description of load events
         -1.0     * SL                      28.03.2013 16:08
 29:    load case:    H1.                        situation: W+000 S-020 Ka
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
          1.0     * SL                      28.03.2013 16:08
 58:    load case:    H1.                        situation: W+010 S+045 Ki
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 70:    load case:    H1.                        situation: W-015 S+000 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 77:    load case:    H1.                        situation: W-015 S+030 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 93:    load case:    H1.                        situation: W-015 S-020 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 94:    load case:    H1.                        situation: W-015 S-020 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 101:   load case:    H2.                        situation: W+025 S+090 Ki
          1.1     * DL Total                28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * DR +x                   28.03.2013 16:09
```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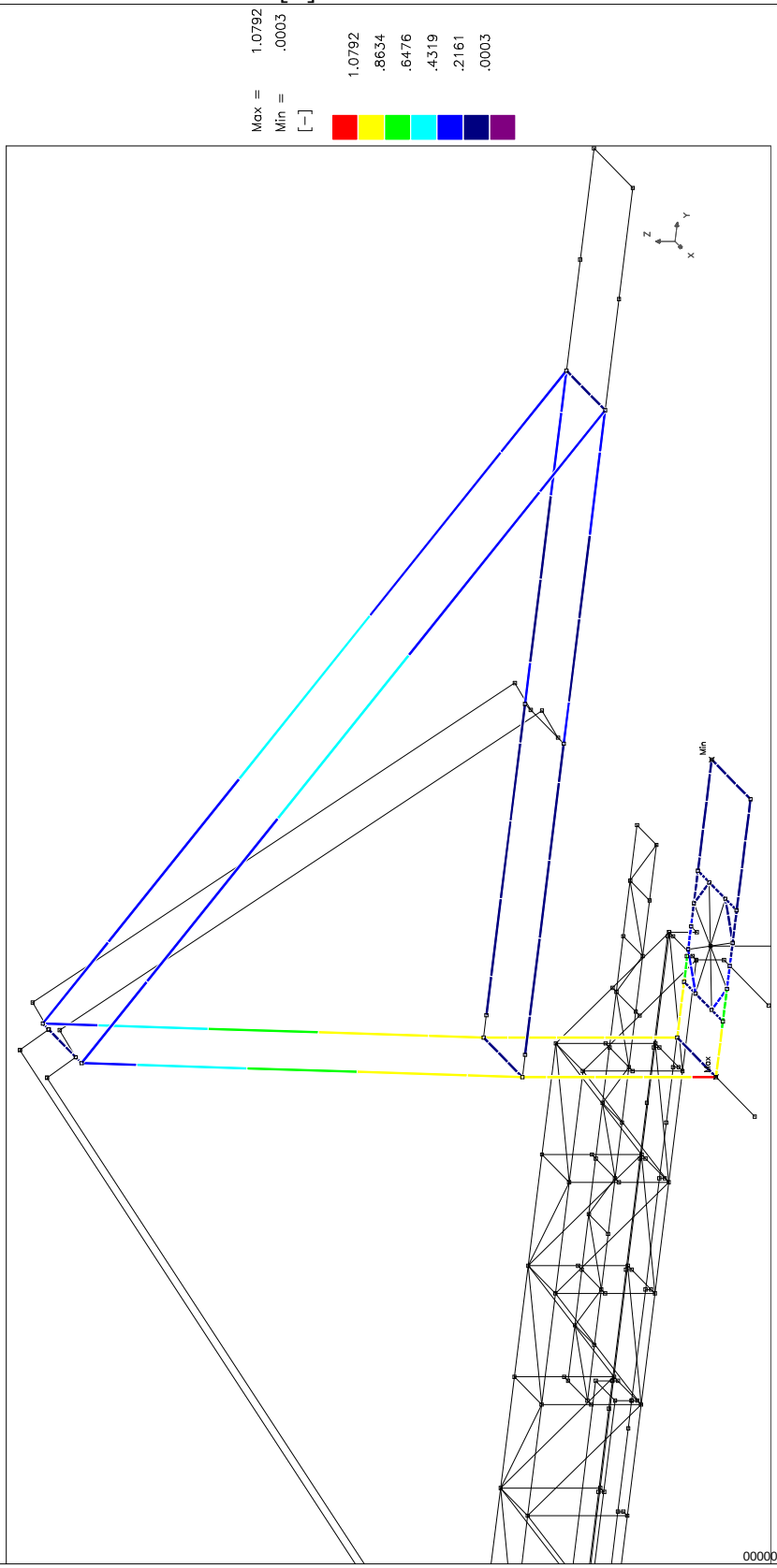
Lizenznehmer: Kühne BSB GmbH, Darmstadt

```
node display with node boxes;
beam display with beam axis;
colour contour, extr.-result: B4 K4 U.Crane P
    Proof of Fatigue DIN 15018
    Loading Group B4, Struct. Elem.
    Sigma
    output: extreme value per section
    consideration of: all sections
    eval. pattern acc.: [_Fatigue]
      26 considered load cases
Min =       .0003  Max =     1.0792 [-]
```



```
output date: 30.08.2013 11:46:20  [  0.468 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    proof: B4 K4 U.Crane T
    Proof of Fatigue DIN 15018
    Loading Group B4, Struct. Elem.
    Sigma
    output: extreme value per beam
    consideration of: all sections
    eval. pattern acc.: [_Fatigue]
      26 considered load cases
    load case: H1.                  LLF situation: W+000 S+000 Ka
    load case: H1.                  LLF situation: W+000 S+000 Ki
    load case: H1.                  LLF situation: W+000 S+000 Km
    load case: H1.                  LLF situation: W+000 S+030 Ka
    load case: H1.                  LLF situation: W+000 S+030 Ki
    load case: H1.                  LLF situation: W+000 S+045 Ka
    load case: H1.                  LLF situation: W+000 S+045 Ki
    load case: H1.                  LLF situation: W+000 S-020 Ka
    load case: H1.                  LLF situation: W+000 S-020 Ki
    load case: H1.                  LLF situation: W+010 S+000 Ka
    load case: H1.                  LLF situation: W+010 S+000 Ki
    load case: H1.                  LLF situation: W+010 S+030 Ka
    load case: H1.                  LLF situation: W+010 S+030 Ki
    load case: H1.                  LLF situation: W+010 S+045 Ka
    load case: H1.                  LLF situation: W+010 S+045 Ki
    load case: H1.                  LLF situation: W+010 S-020 Ka
    load case: H1.                  LLF situation: W+010 S-020 Ki
    load case: H1.                  LLF situation: W-015 S+000 Ka
    load case: H1.                  LLF situation: W-015 S+000 Ki
    load case: H1.                  LLF situation: W-015 S+030 Ka
    load case: H1.                  LLF situation: W-015 S+030 Ki
    load case: H1.                  LLF situation: W-015 S+045 Ka
    load case: H1.                  LLF situation: W-015 S+045 Ki
    load case: H1.                  LLF situation: W-015 S-020 Ka
    load case: H1.                  LLF situation: W-015 S-020 Ki
    load case: H2.                  LLF situation: W+025 S+090 Ki

    list of objects:
        list name: UpperCrane              list type: Beams, Simple List
        subsystems:upper crane;
        elements:

output of:
----------
beam                beam name
section             section                                    [cm]
pnt                 cross section point
W                   weld
nc                  notch condition
max sig             max sigma                                  [kN/cm²]
lpS                 load case s max
min sig             min sigma                                  [kN/cm²]
lps                 load case s min
kappa s             kappa sigma                                [.]
adm sig             admissible sigma                           [kN/cm²]
uti sig             utilization sigma                          [-]
O                   kind of extreme value
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section
     p = extreme value per point

|section| < .1 [cm] = 0
|max sig| < .01 [kN/cm²] = 0
|min sig| < .01 [kN/cm²] = 0
|kappa s| < .001 [.] = 0
|adm sig| < .01 [kN/cm²] = 0
|uti sig| < .001 [-] = 0
```

beam	section	pntW	nc	max sig	lpS	min sig	lps	kappa s	adm sig	uti sig	O
upper crane											
Item 006. 1	200.0	2	K4	-.184	102	-.152	87	.825	18.0	.01	b
Item 006. 2	41.41	2	K4	2.876	101	.053	30	.018	9.112	.316	b
Item 006. 3	200.0	3	K4	-.184	102	-.154	87	.838	18.0	.01	b
Item 006. 4	41.41	3	K4	3.009	101	.155	30	.051	9.319	.323	b
Item 006. 5	58.59	2	K4	.31	101	-.085	77	-.275	7.604	.041	b
Item 006. 6	58.59	3	K4	.323	101	-.098	94	-.303	7.487	.043	b
Item 006. 7	100.0	2	K4	11.678	101	4.571	21	.391	12.178	.959	b
Item 006. 8	100.0	3	K4	11.624	101	4.521	14	.389	12.15	.957	b
Item 006. 9	58.59	1	K4	.388	101	.106	22	.272	10.992	.035	b
Item 006. 10	58.59	4	K4	.958	30	-.837	101	-.873	5.688	.168	b
Item 006. 11	82.82	3	K4	.199	102	-.041	29	-.205	7.919	.025	b
Item 006. 12	.0	1	K4	.701	101	.359	62	.512	13.668	.051	b
Item 006. 13	.0	1	K4	.374	101	.114	30	.304	11.287	.033	b
Item 006. 14	.0	4	K4	1.058	21	-.704	101	-.665	6.236	.17	b
Item 006. 15	41.41	3	K4	3.79	101	1.515	93	.4	12.27	.309	b
Item 006. 16	41.41	2	K4	3.784	101	1.565	86	.414	12.427	.304	b
Item 006. 17	58.59	2	K4	8.287	101	.907	21	.109	9.708	.854	b
Item 006. 18	58.59	3	K4	8.534	101	1.107	30	.13	9.852	.866	b
Item 006. 19	.0	3	K4	1.234	101	.313	22	.253	10.829	.114	b
Item 006. 20	82.859	1	K4	1.196	101	.206	29	.172	10.167	.118	b
Item 006. 21	.0	2	K4	3.198	101	-.162	29	-.051	8.705	.367	b
Item 006. 22	82.859	4	K4	3.353	101	-.057	30	-.017	8.9	.377	b
Item 007. 1	200.0	4	K4	.736	49	-.012	70	-.016	8.905	.083	b
Item 007. 2	100.0	2	K4	.042	102	.032	87	.765	18.0	.002	b
Item 007. 3	.0	2	K4	-7.504	102	-6.51	14	.868	18.0	.417	b
Item 007. 4	.0	2	K4	-7.499	102	-6.563	30	.875	18.0	.417	b
Item 007. 5	.0	1	K4	-2.913	59	-1.103	30	.379	14.448	.202	b
Item 007. 6	.0	4	K4	-2.917	68	-1.097	21	.376	14.415	.202	b
Item 008. 1	200.0	4	K4	.217	93	.024	60	.109	9.705	.022	b
Item 008. 2	.0	3	K4	12.637	101	4.387	21	.347	11.71	1.079	b
Item 008. 3	.0	2	K4	12.486	101	4.247	30	.34	11.639	1.073	b
Item 009. 1	.0	1	K4	14.205	101	8.283	30	.583	14.723	.965	b
Item 009. 2	.0	-1	K4	14.192	101	8.269	21	.583	14.716	.964	b
Item 010. 1	.0	2	K4	-.067	102	-.057	83	.851	18.0	.004	b
Item 010. 2	710.743	2	K4	7.988	102	6.987	21	.875	18.0	.444	b
Item 010. 3	710.743	2	K4	7.989	102	6.995	21	.876	18.0	.444	b
Item 011. 1	30.0	-1	K4	2.288	94	1.127	101	.493	13.404	.171	b

```
 beam                 section  pntW nc  max sig  lpS  min sig  lps  kappa s  adm sig  uti sig  O

 Item 011.   2            .0    -1  K4     2.272   85    1.127  101     .496   13.445     .169 b
 Item 011.   3          35.0    -1  K4     2.307   94    1.154  101     .5     13.502     .171 b
 Item 008.   2            .0     3  K4    12.637  101    4.387   21     .347   11.71     1.079 a

Following beams do not have classifiable (and selected) points for proof of stresses:
    upper crane ( rigid  58; rigid  59; rigid  60; rigid  61;
       rigid  62; rigid  63; rigid  64; rigid  65; rigid  66;
       rigid  67; rigid  68; rigid  69; rigid  70; rigid  71;
       rigid  72; rigid  73; rigid  74; rigid  75; rigid  76;
       rigid  77; rigid  78; rigid  79; rigid  80; rigid  83;
       rigid  84; rigid  85; rigid  86; rigid  87; rigid  88;
       rigid  89; rigid  90)



description of load events
 14:    load case:    H1.                        situation: W+000 S+030 Ka
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
         -1.0     * SL                      28.03.2013 16:08
 21:    load case:    H1.                        situation: W+000 S+045 Ka
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
          1.0     * SL                      28.03.2013 16:08
 22:    load case:    H1.                        situation: W+000 S+045 Ka
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
         -1.0     * SL                      28.03.2013 16:08
 29:    load case:    H1.                        situation: W+000 S-020 Ka
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
          1.0     * SL                      28.03.2013 16:08
 30:    load case:    H1.                        situation: W+000 S-020 Ka
          1.0     * DL Total                28.03.2013 16:08
          1.0     * LL                      28.03.2013 16:08
           .1     * LL                      28.03.2013 16:08
         -1.0     * SL                      28.03.2013 16:08
 49:    load case:    H1.                        situation: W+010 S+030 Ki
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 59:    load case:    H1.                        situation: W+010 S+045 Ki
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 60:    load case:    H1.                        situation: W+010 S+045 Ki
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 62:    load case:    H1.                        situation: W+010 S-020 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 68:    load case:    H1.                        situation: W+010 S-020 Ki
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 70:    load case:    H1.                        situation: W-015 S+000 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 77:    load case:    H1.                        situation: W-015 S+030 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 83:    load case:    H1.                        situation: W-015 S+030 Ki
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 85:    load case:    H1.                        situation: W-015 S+045 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 86:    load case:    H1.                        situation: W-015 S+045 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 87:    load case:    H1.                        situation: W-015 S+045 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 93:    load case:    H1.                        situation: W-015 S-020 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 94:    load case:    H1.                        situation: W-015 S-020 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 101:   load case:    H2.                        situation: W+025 S+090 Ki
          1.1     * DL Total                28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * DR +x                   28.03.2013 16:09
```

```
description of load events
 102:   load case:    H2.                          situation: W+025 S+090 Ki
          1.1     * DL Total                 28.03.2013 16:09
           .1     * LL                       28.03.2013 16:09
         -1.0     * DR +x                    28.03.2013 16:09
```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Lizenznehmer: Kühne BSB GmbH, Darmstadt

```
output date: 30.08.2013 11:47:26  [  0.234 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    result: N Seil H
    Output of Inner Forces
    find extreme value for: normal force x
    kind of extreme value: maximum and minimum
    output: extreme value per beam

      12 considered load cases
    load case: H1.                  LLF situation: W+000 S+000 Ka
    load case: H1.                  LLF situation: W+000 S+030 Ka
    load case: H1.                  LLF situation: W+000 S+045 Ka
    load case: H1.                  LLF situation: W+000 S-020 Ka
    load case: H1.                  LLF situation: W+010 S+000 Ka
    load case: H1.                  LLF situation: W+010 S+030 Ka
    load case: H1.                  LLF situation: W+010 S+045 Ka
    load case: H1.                  LLF situation: W+010 S-020 Ka
    load case: H1.                  LLF situation: W-015 S+000 Ka
    load case: H1.                  LLF situation: W-015 S+030 Ka
    load case: H1.                  LLF situation: W-015 S+045 Ka
    load case: H1.                  LLF situation: W-015 S-020 Ka

    list of objects:
        list name: Item 020.               list type: Beams, Filter List
        elements:
          rope (Item 020.   1;Item 020.   2)

output of:
----------
Beam Name            beam name
Distance             section                                        [cm]
Lf                   permutation of load case
Fx                   normal force x                                 [kN]
Fy                   shear force y                                  [kN]
Fz                   shear force z                                  [kN]
Opt                  kind of extreme value
Mx                   torsional moment x                             [kNcm]
My                   bending moment y                               [kNcm]
Mz                   bending moment z                               [kNcm]
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section

|Fx| < 1.0E-05 [kN] = 0
|Fy| < 1.0E-05 [kN] = 0
|Fz| < 1.0E-05 [kN] = 0
|Mx| < .001 [kNcm] = 0
|My| < .001 [kNcm] = 0
|Mz| < .001 [kNcm] = 0


Beam Name            Distance   Lf      Fx          Fy          Fz
        Opt                             Mx          My          Mz

rope
Item 020.   1            .0     45      144.87         .0          .0
        b                                  .0          .0          .0
                         .0     28      119.62         .0          .0
        b                                  .0          .0          .0
```

```
Beam Name            Distance   Lf      Fx          Fy          Fz
        Opt                             Mx          My          Mz

Item 020.   2            .0     42      144.21         .0          .0
        b                                  .0          .0          .0
                         .0     31      119.15         .0          .0
        b                                  .0          .0          .0
Item 020.   1            .0     45      144.87         .0          .0
        a                                  .0          .0          .0
Item 020.   2            .0     31      119.15         .0          .0
        a                                  .0          .0          .0


description of load events
 28:    load case:    H1.                        situation: W+010 S+045 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 31:    load case:    H1.                        situation: W+010 S-020 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
 42:    load case:    H1.                        situation: W-015 S+045 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
 45:    load case:    H1.                        situation: W-015 S-020 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
```

```
output date: 30.08.2013 11:47:46  [  0.328 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    result: N Seil HZ
    Output of Inner Forces
    find extreme value for: normal force x
    kind of extreme value: maximum and minimum
    output: extreme value per beam

      12 considered load cases
    load case: HZ1.                LLF situation: W+000 S+000 Ka
    load case: HZ1.                LLF situation: W+000 S+030 Ka
    load case: HZ1.                LLF situation: W+000 S+045 Ka
    load case: HZ1.                LLF situation: W+000 S-020 Ka
    load case: HZ1.                LLF situation: W+010 S+000 Ka
    load case: HZ1.                LLF situation: W+010 S+030 Ka
    load case: HZ1.                LLF situation: W+010 S+045 Ka
    load case: HZ1.                LLF situation: W+010 S-020 Ka
    load case: HZ1.                LLF situation: W-015 S+000 Ka
    load case: HZ1.                LLF situation: W-015 S+030 Ka
    load case: HZ1.                LLF situation: W-015 S+045 Ka
    load case: HZ1.                LLF situation: W-015 S-020 Ka

    list of objects:
        list name: Item 020.              list type: Beams, Filter List
        elements:
          rope (Item 020.   1;Item 020.   2)

output of:
----------
Beam Name            beam name
Distance             section                                    [cm]
Lf                   permutation of load case
Fx                   normal force x                             [kN]
Fy                   shear force y                              [kN]
Fz                   shear force z                              [kN]
Opt                  kind of extreme value
Mx                   torsional moment x                         [kNcm]
My                   bending moment y                           [kNcm]
Mz                   bending moment z                           [kNcm]
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section

|Fx| < 1.0E-05 [kN] = 0
|Fy| < 1.0E-05 [kN] = 0
|Fz| < 1.0E-05 [kN] = 0
|Mx| < .001 [kNcm] = 0
|My| < .001 [kNcm] = 0
|Mz| < .001 [kNcm] = 0


Beam Name            Distance   Lf      Fx          Fy          Fz
        Opt                             Mx          My          Mz

rope
Item 020.   1            .0    129      160.63         .0          .0
        b                                  .0          .0          .0
                         .0     78      106.88         .0          .0
        b                                  .0          .0          .0
```

```
Beam Name            Distance   Lf       Fx          Fy          Fz
        Opt                              Mx          My          Mz

Item 020.   2            .0    134      159.97         .0          .0
        b                                   .0         .0          .0
                         .0     73      106.42         .0          .0
        b                                   .0         .0          .0
Item 020.   1            .0    129      160.63         .0          .0
        a                                   .0         .0          .0
Item 020.   2            .0     73      106.42         .0          .0
        a                                   .0         .0          .0


description of load events
 73:    load case:    HZ1.                        situation: W+010 S+000 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
          1.0     * W 20 m/s +x             28.03.2013 16:09
 78:    load case:    HZ1.                        situation: W+010 S+000 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
          -.1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
         -1.0     * W 20 m/s +x             28.03.2013 16:09
 129:   load case:    HZ1.                        situation: W-015 S+000 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
          1.0     * SL                      28.03.2013 16:09
          1.0     * W 20 m/s +x             28.03.2013 16:09
 134:   load case:    HZ1.                        situation: W-015 S+000 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * LL                      28.03.2013 16:09
           .1     * LL                      28.03.2013 16:09
         -1.0     * SL                      28.03.2013 16:09
         -1.0     * W 20 m/s +x             28.03.2013 16:09
```


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```
output date: 30.08.2013 11:47:58  [  0.624 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    result: N Seil oS
    Output of Inner Forces
    find extreme value for: normal force x
    kind of extreme value: maximum and minimum
    output: extreme value per beam

      36 considered load cases
    load case: H2.                  LLF situation: W+000 S+000 Ka
    load case: H2.                  LLF situation: W+000 S+030 Ka
    load case: H2.                  LLF situation: W+000 S+045 Ka
    load case: H2.                  LLF situation: W+000 S-020 Ka
    load case: H2.                  LLF situation: W+010 S+000 Ka
    load case: H2.                  LLF situation: W+010 S+030 Ka
    load case: H2.                  LLF situation: W+010 S+045 Ka
    load case: H2.                  LLF situation: W+010 S-020 Ka
    load case: H2.                  LLF situation: W-015 S+000 Ka
    load case: H2.                  LLF situation: W-015 S+030 Ka
    load case: H2.                  LLF situation: W-015 S+045 Ka
    load case: H2.                  LLF situation: W-015 S-020 Ka
    load case: HZ2.                 LLF situation: W+000 S+000 Ka
    load case: HZ2.                 LLF situation: W+000 S+030 Ka
    load case: HZ2.                 LLF situation: W+000 S+045 Ka
    load case: HZ2.                 LLF situation: W+000 S-020 Ka
    load case: HZ2.                 LLF situation: W+010 S+000 Ka
    load case: HZ2.                 LLF situation: W+010 S+030 Ka
    load case: HZ2.                 LLF situation: W+010 S+045 Ka
    load case: HZ2.                 LLF situation: W+010 S-020 Ka
    load case: HZ2.                 LLF situation: W-015 S+000 Ka
    load case: HZ2.                 LLF situation: W-015 S+030 Ka
    load case: HZ2.                 LLF situation: W-015 S+045 Ka
    load case: HZ2.                 LLF situation: W-015 S-020 Ka
    load case: HS1.                 LLF situation: W+000 S+000 Ka
    load case: HS1.                 LLF situation: W+000 S+030 Ka
    load case: HS1.                 LLF situation: W+000 S+045 Ka
    load case: HS1.                 LLF situation: W+000 S-020 Ka
    load case: HS1.                 LLF situation: W+010 S+000 Ka
    load case: HS1.                 LLF situation: W+010 S+030 Ka
    load case: HS1.                 LLF situation: W+010 S+045 Ka
    load case: HS1.                 LLF situation: W+010 S-020 Ka
    load case: HS1.                 LLF situation: W-015 S+000 Ka
    load case: HS1.                 LLF situation: W-015 S+030 Ka
    load case: HS1.                 LLF situation: W-015 S+045 Ka
    load case: HS1.                 LLF situation: W-015 S-020 Ka

    list of objects:
        list name: Item 020.               list type: Beams, Filter List
        elements:
          rope (Item 020.   1;Item 020.   2)

output of:
----------
Beam Name            beam name
Distance             section                                    [cm]
Lf                   permutation of load case
Fx                   normal force x                             [kN]
Fy                   shear force y                              [kN]
Fz                   shear force z                              [kN]
Opt                  kind of extreme value
Mx                   torsional moment x                         [kNcm]
My                   bending moment y                           [kNcm]
```

```
Mz                    bending moment z                              [kNcm]
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section

|Fx| < 1.0E-05 [kN] = 0
|Fy| < 1.0E-05 [kN] = 0
|Fz| < 1.0E-05 [kN] = 0
|Mx| < .001 [kNcm] = 0
|My| < .001 [kNcm] = 0
|Mz| < .001 [kNcm] = 0


Beam Name            Distance   Lf      Fx          Fy          Fz
        Opt                             Mx          My          Mz

rope
Item 020.   1            .0    153      236.2          .0          .0
        b                                   .0          .0          .0
                         .0    154       25.1          .0          .0
        b                                   .0          .0          .0
Item 020.   2            .0    154      235.41         .0          .0
        b                                   .0          .0          .0
                         .0    153       24.31         .0          .0
        b                                   .0          .0          .0
Item 020.   1            .0    153      236.2          .0          .0
        a                                   .0          .0          .0
Item 020.   2            .0    153       24.31         .0          .0
        a                                   .0          .0          .0


description of load events
 153:   load case:    HS1.                       situation: W-015 S+000 Ka
          1.0     * DL Total                28.03.2013 16:09
          1.0     * W 51,75m/s +x           28.03.2013 16:09
 154:   load case:    HS1.                       situation: W-015 S+000 Ka
          1.0     * DL Total                28.03.2013 16:09
         -1.0     * W 51,75m/s +x           28.03.2013 16:09
```

```
output date: 30.08.2013 11:48:11  [  0.094 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    result: KDV iS 0/0/0.
    Output of Inner Forces
    without search of extreme values
    consideration of: start of beam

       5 considered load cases
    load case: DL Total             GLF situation: W+000 S+000 Ka
    load case: LL                   GLF situation: W+000 S+000 Ka
    load case: SL                   GLF situation: W+000 S+000 Ka
    load case: W 20 m/s +x          GLF situation: W+000 S+000 Ka
    load case: W 20 m/s +y          GLF situation: W+000 S+000 Ka

    list of objects:
        list name: KDK                     list type: Beams, Simple List
        elements:
          upper crane (rigid  58)

output of:
----------
Beam Name            beam name
Distance             section                                    [cm]
Lf                   permutation of load case
Fx                   normal force x                             [kN]
Fy                   shear force y                              [kN]
Fz                   shear force z                              [kN]
Mx                   torsional moment x                         [kNcm]
My                   bending moment y                           [kNcm]
Mz                   bending moment z                           [kNcm]
Opt                  kind of extreme value
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section

|Fx| < 1,0E-05 [kN] = 0
|Fy| < 1,0E-05 [kN] = 0
|Fz| < 1,0E-05 [kN] = 0
|Mx| < ,001 [kNcm] = 0
|My| < ,001 [kNcm] = 0
|Mz| < ,001 [kNcm] = 0


Subsys.        Beam Name       Distance        Lf      Fx      Fy      Fz      Mx      My      Mz      Opt

upper crane    rigid  58             ,0           1        -806,18      9,7096E-05     -3,9669E-05      2,7366E-03         5298,41        -3515,4
upper crane    rigid  58             ,0           2         -32,67      1,9607E-05              ,0              ,0              ,0        -23683,8
upper crane    rigid  58             ,0           3             ,0             -,03             ,02        -3589,2          271,85           -5,66
upper crane    rigid  58             ,0           4     1,0742E-05             ,23          -46,7         17152,27        21163,27           57,25
upper crane    rigid  58             ,0           5            ,85           25,69            -,23          881,13          57,51        12618,41


description of load events
 1:     load case:    DL Total                    situation: W+000 S+000 Ka
          1,0     * DL Total               28.03.2013 16:08
 2:     load case:    LL                          situation: W+000 S+000 Ka
          1,0     * LL                     28.03.2013 16:08
 3:     load case:    SL                          situation: W+000 S+000 Ka
          1,0     * SL                     28.03.2013 16:08
 4:     load case:    W 20 m/s +x                 situation: W+000 S+000 Ka
          1,0     * W 20 m/s +x            28.03.2013 16:08
 5:     load case:    W 20 m/s +y                 situation: W+000 S+000 Ka
          1,0     * W 20 m/s +y            28.03.2013 16:08
```

```
output date: 30.08.2013 11:48:26  [  0.093 s]

data file: ...kstart\Großes Modell\KRASTA\00000 - MUSTER Schiffsbelader_V03


    result: KDV oS
    Output of Inner Forces
    without search of extreme values
    consideration of: start of beam

       5 considered load cases
    load case: DL Total             GLF situation: W+025 S+090 Ki
    load case: LL                   GLF situation: W+025 S+090 Ki
    load case: DR +x                GLF situation: W+025 S+090 Ki
    load case: W 51,75m/s +x        KLF situation: W+025 S+090 Ki
    load case: W 51,75m/s +y        KLF situation: W+025 S+090 Ki

    list of objects:
        list name: KDK                     list type: Beams, Simple List
        elements:
          upper crane (rigid  58)

output of:
----------
Beam Name            beam name
Distance             section                                    [cm]
Lf                   permutation of load case
Fx                   normal force x                             [kN]
Fy                   shear force y                              [kN]
Fz                   shear force z                              [kN]
Mx                   torsional moment x                         [kNcm]
My                   bending moment y                           [kNcm]
Mz                   bending moment z                           [kNcm]
Opt                  kind of extreme value
kind of extreme value:
     a = extreme value of all beams
     b = extreme value per beam
     s = extreme value per section

|Fx| < 1,0E-05 [kN] = 0
|Fy| < 1,0E-05 [kN] = 0
|Fz| < 1,0E-05 [kN] = 0
|Mx| < ,001 [kNcm] = 0
|My| < ,001 [kNcm] = 0
|Mz| < ,001 [kNcm] = 0


Subsys.        Beam Name       Distance        Lf      Fx      Fy      Fz      Mx      My      Mz      Opt

upper crane    rigid  58             ,0           1        -806,18     -2,3954E-05       4,386E-05             ,0          5298,4         89439,19
upper crane    rigid  58             ,0           2         -17,66              ,0             ,0             ,0              ,0         -4129,41
upper crane    rigid  58             ,0           3            ,0            20,54     -1,6274E-04          135,01             ,1         12166,23
upper crane    rigid  58             ,0           4         -48,8          -187,43           1,39        -5742,23         -685,26      -144092,08
upper crane    rigid  58             ,0           5           -,65            1,39         -332,72       106207,51       208624,97          347,23


description of load events
 1:     load case:    DL Total                    situation: W+025 S+090 Ki
          1,0     * DL Total               28.03.2013 16:09
 2:     load case:    LL                          situation: W+025 S+090 Ki
          1,0     * LL                     28.03.2013 16:09
 3:     load case:    DR +x                       situation: W+025 S+090 Ki
          1,0     * DR +x                  28.03.2013 16:09
 4:     load case:    W 51,75m/s +x               situation: W+025 S+090 Ki
          1,0     * W 51,75m/s +x          28.03.2013 16:09
 5:     load case:    W 51,75m/s +y               situation: W+025 S+090 Ki
          1,0     * W 51,75m/s +y          28.03.2013 16:09
```