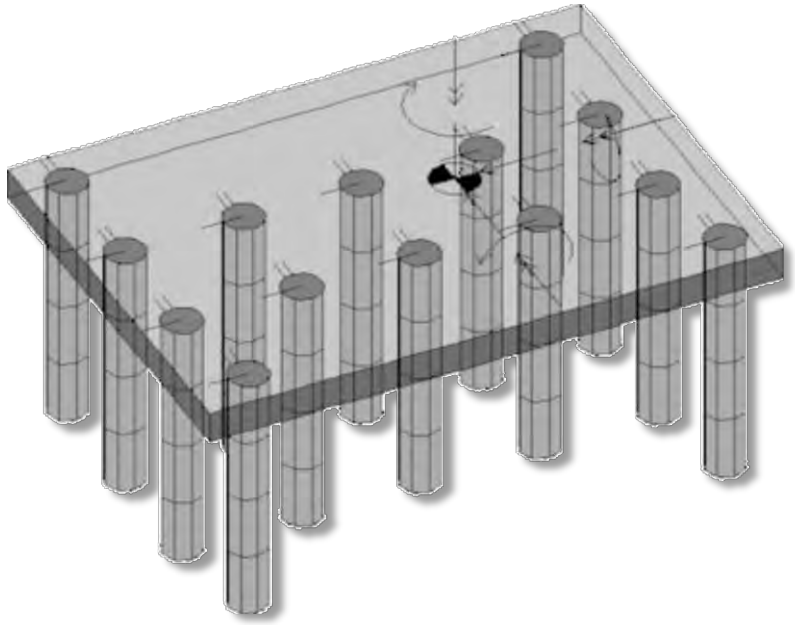
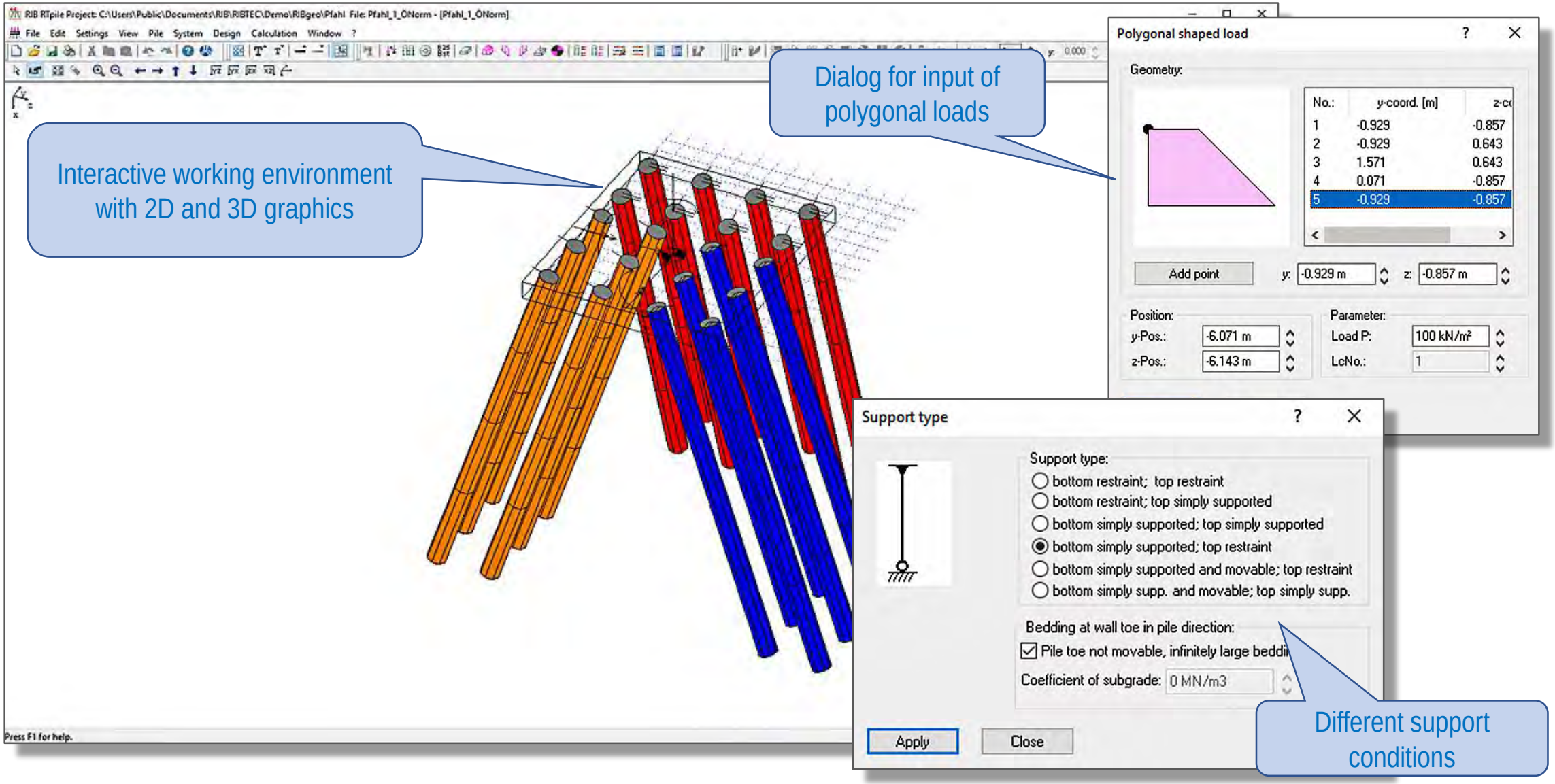
RTpile – Analysis and Design of Spatial Pile Structures

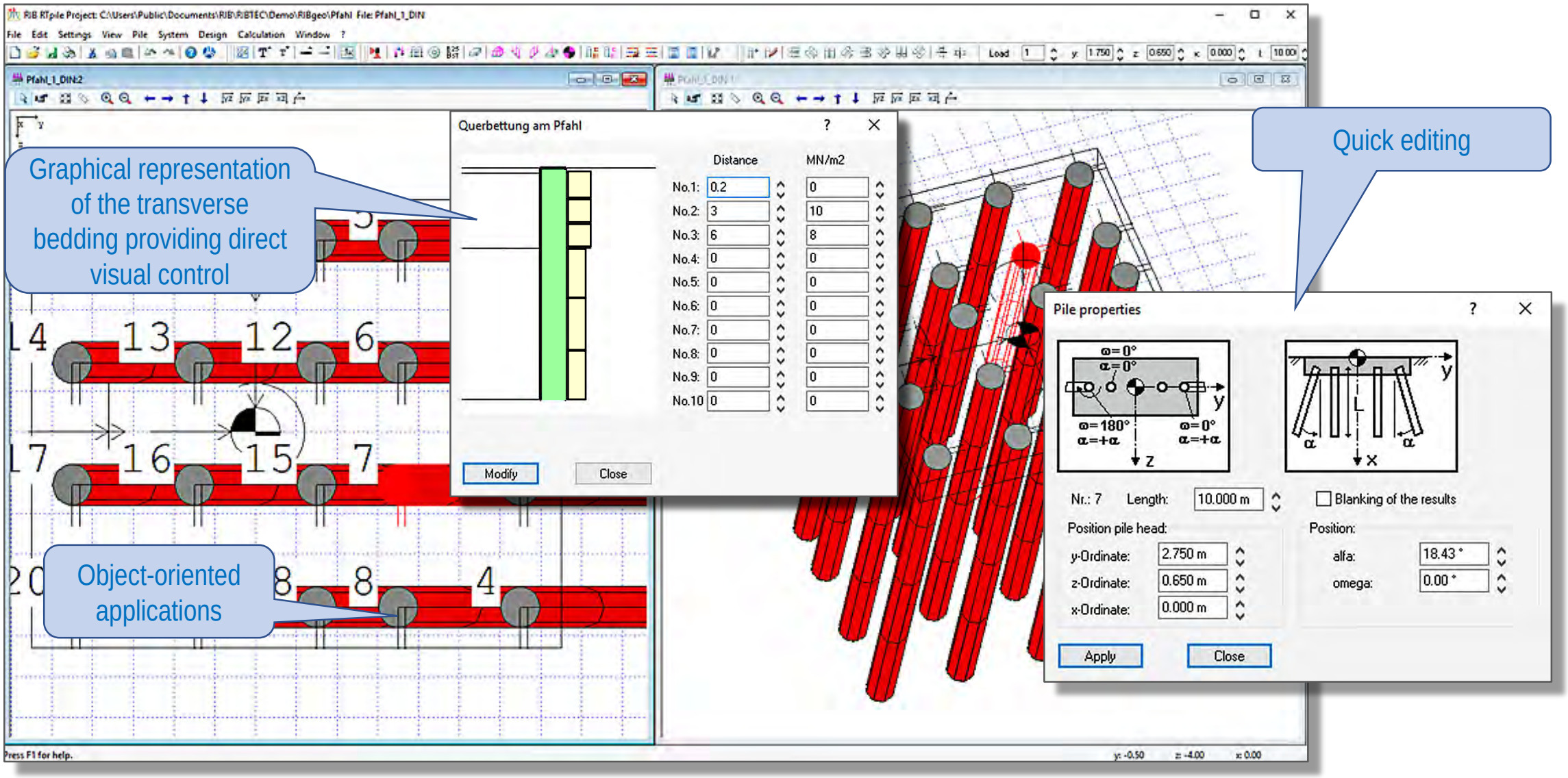
- Well approved evaluation and design algorithms and adapted to the latest generation of Eurocode standards
- Efficient 3D editing with optimal graphical control of all modifications
- Fast application via sensitive elements and dimension chains
- Complete result output with free configuration of tables and graphics



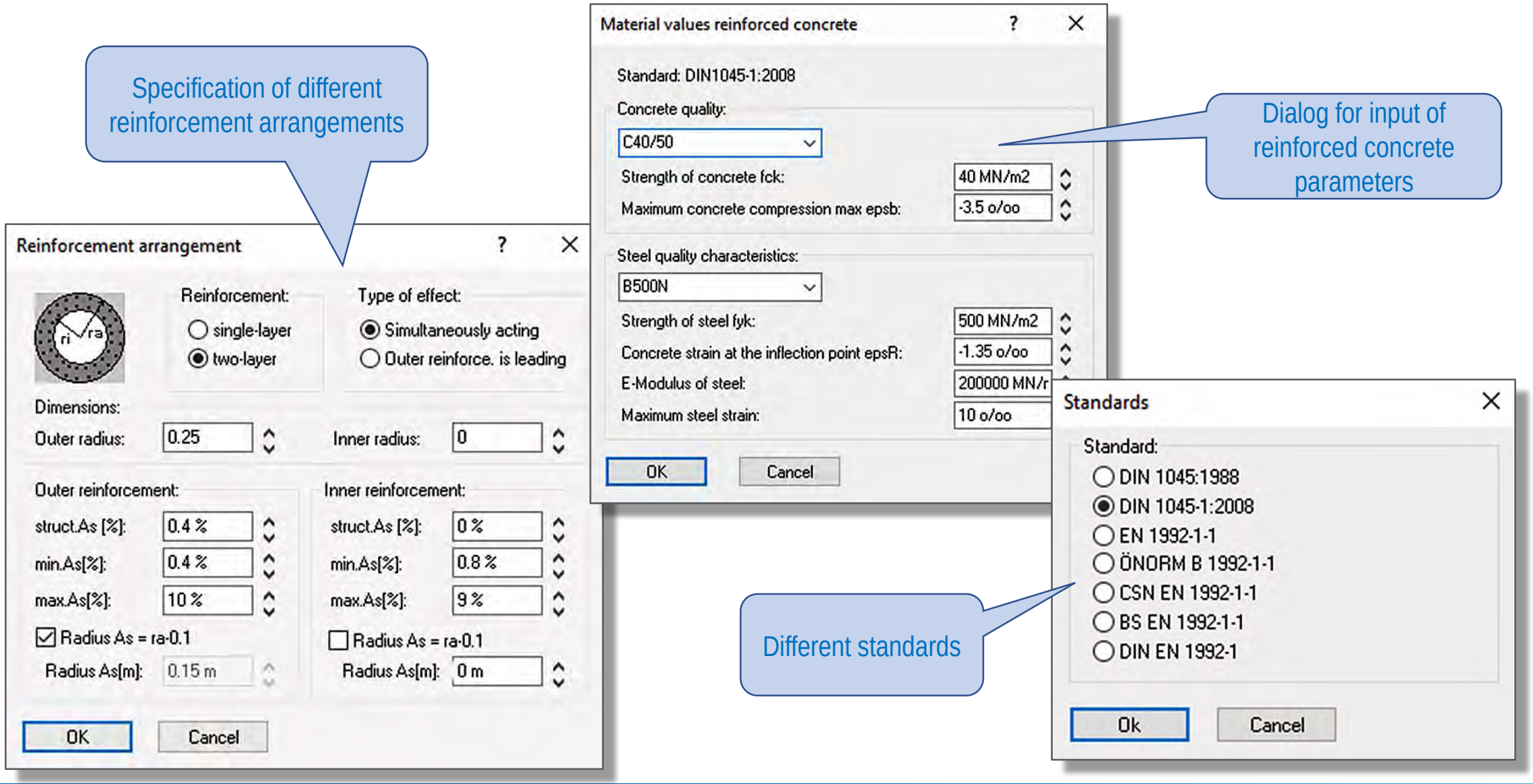
RTpile - Versatile foundation engineering application



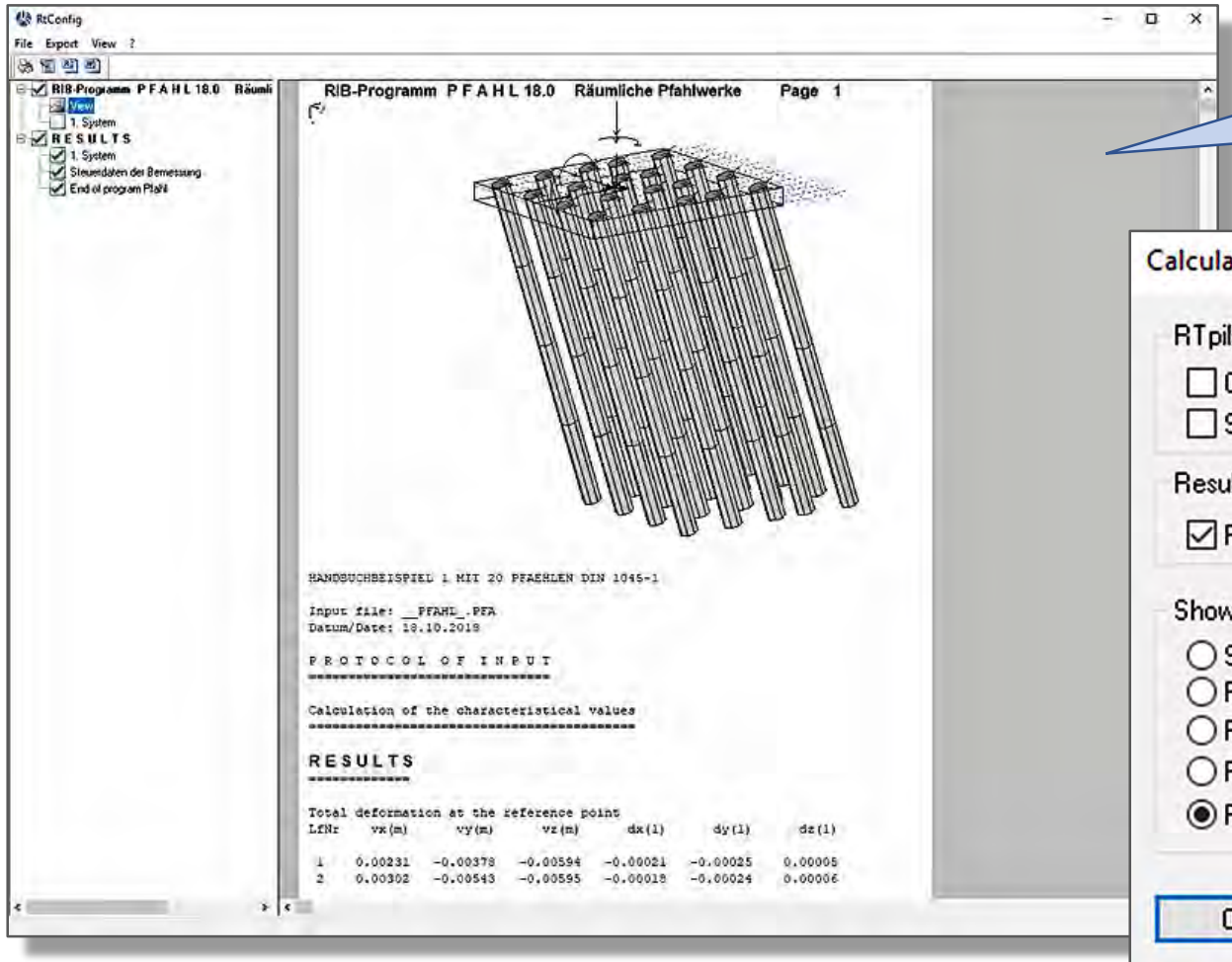
RTpile - Conveniant processing of 3D systems



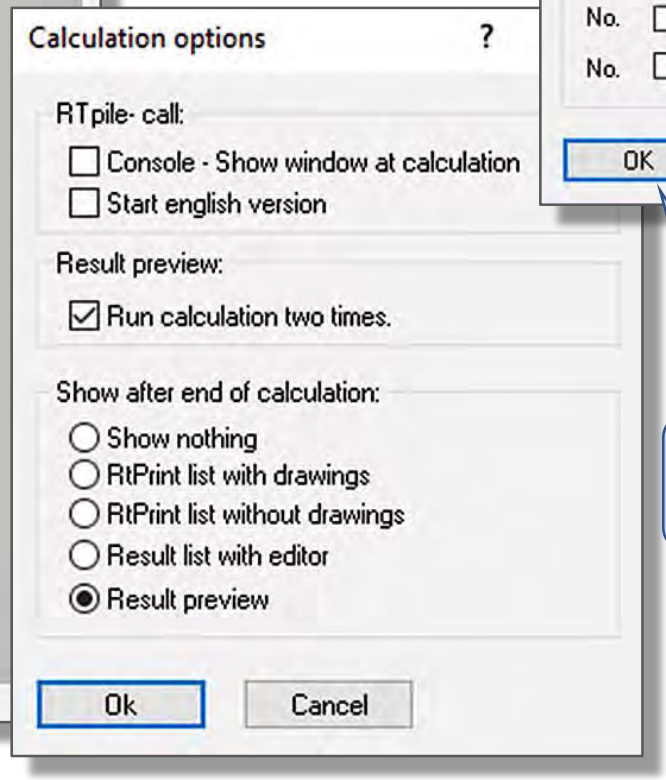
RTpile - Structural Analysis with Special Features

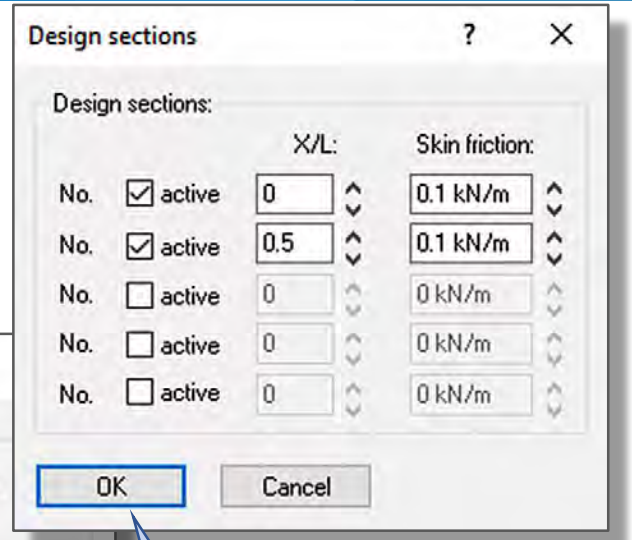


RTpile - Efficient and economical dimensioning



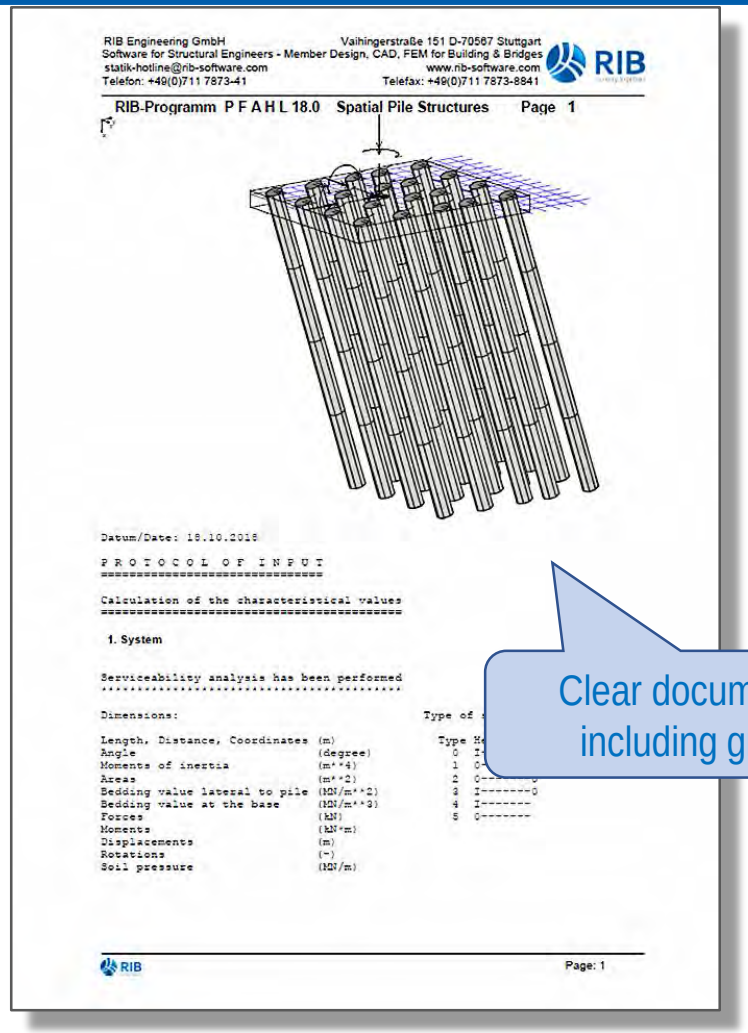
Configurable results output





Different calculation options

RTpile - Clear and verifiable Report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RIB-Programm P F A H L 18.0 Spatial Pile Structures Page 1

Datum/Date: 18.10.2018

P R O T O C O L O F I N P U T

Calculation of the characteristical values

1. System

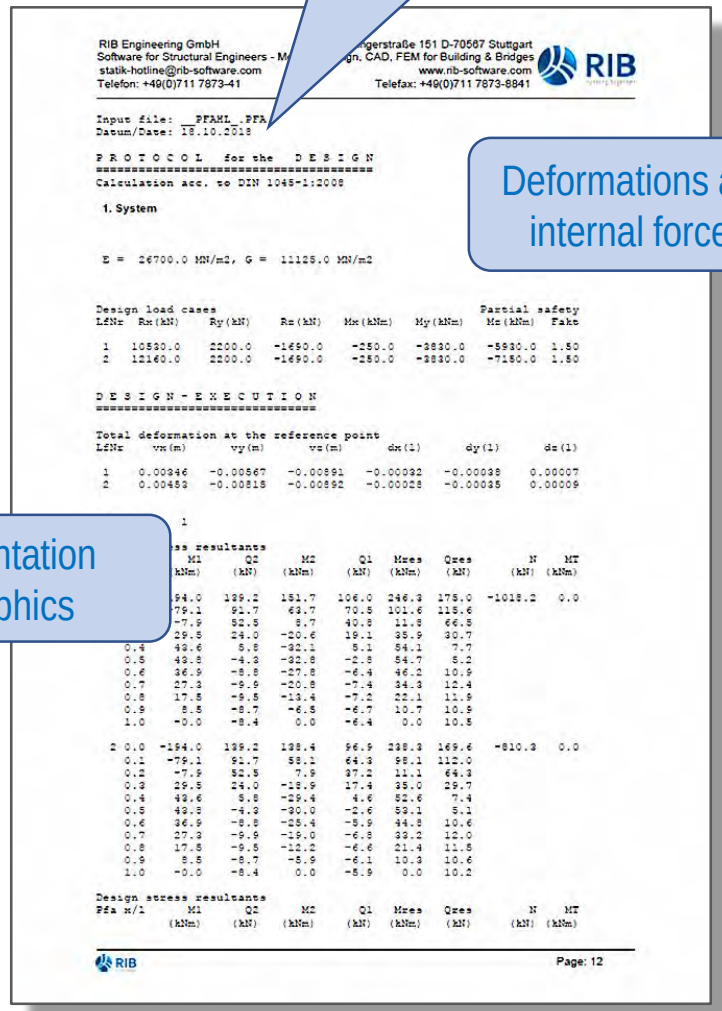
Serviceability analysis has been performed

Dimensions:

Length, Distance, Coordinates	(m)	
Angle	(degree)	
Moments of inertia	(m**4)	
Areas	(m**2)	
Bedding value lateral to pile	(MN/m**2)	
Bedding value at the base	(MN/m**3)	
Forces	(kN)	
Moments	(kNm)	
Displacements	(m)	
Rotations	(-)	
Soil pressure	(MN/m)	

RIB Page: 1

Design stress resultants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Input file: __PFAHL_.PFA
Datum/Date: 18.10.2018

P R O T O C O L for the D E S I G N

Calculation acc. to DIN 1045-1:2008

1. System

E = 26700.0 MN/m2, G = 11125.0 MN/m2

Design load cases

LfNr	Rx (kN)	Ry (kN)	Rz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)	Partial safety Fakt
1	10530.0	2200.0	-1690.0	-250.0	-3830.0	-5930.0	1.50
2	12160.0	2200.0	-1690.0	-250.0	-3830.0	-7150.0	1.50

D E S I G N - E X E C U T I O N

Total deformation at the reference point

LfNr	vx (m)	vy (m)	vz (m)	dx (1)	dy (1)	dz (1)
1	0.00346	-0.00567	-0.00891	-0.00092	-0.00038	0.00007
2	0.00453	-0.00818	-0.00892	-0.00028	-0.00035	0.00009

1

ss resultants

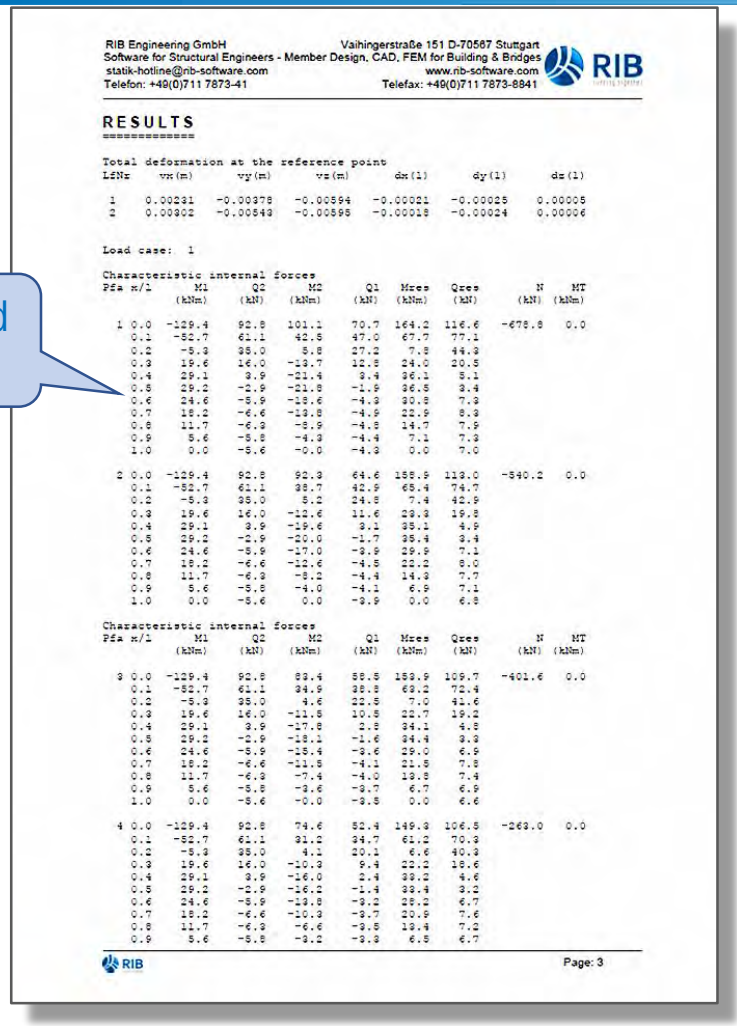
		M1 (kNm)	Q2 (kN)	M2 (kNm)	Q1 (kN)	Mres (kNm)	Qres (kN)	N (kN)	MT (kNm)
		94.0	139.2	151.7	106.0	246.9	175.0	-1018.2	0.0
		79.1	91.7	63.7	70.5	101.6	115.6		
		7.9	52.5	8.7	40.8	11.8	66.5		
		29.5	24.0	-20.6	19.1	35.9	30.7		
	0.4	49.6	5.8	-32.1	5.1	54.1	7.7		
	0.5	49.8	-4.3	-32.8	-2.8	54.7	5.2		
	0.6	36.9	-8.5	-27.8	-6.4	46.2	10.9		
	0.7	27.3	-8.5	-20.8	-7.4	34.3	12.4		
	0.8	17.5	-8.5	-13.4	-7.2	22.1	11.9		
	0.9	8.5	-8.7	-6.5	-6.7	10.7	10.9		
	1.0	-0.0	-8.4	0.0	-6.4	0.0	10.5		
2	0.0	-194.0	139.2	138.4	96.9	238.3	169.6	-810.3	0.0
	0.1	-79.1	91.7	58.1	64.3	98.1	112.0		
	0.2	-7.9	52.5	7.9	37.2	11.1	64.3		
	0.3	29.5	24.0	-18.9	17.4	35.0	29.7		
	0.4	49.6	5.8	-29.4	4.6	52.6	7.4		
	0.5	49.8	-4.3	-30.0	-2.6	53.1	5.1		
	0.6	36.9	-8.5	-25.4	-5.9	44.8	10.6		
	0.7	27.3	-8.5	-19.0	-6.8	33.2	12.0		
	0.8	17.5	-8.5	-12.2	-6.6	21.4	11.5		
	0.9	8.5	-8.7	-5.9	-6.1	10.3	10.6		
	1.0	-0.0	-8.4	0.0	-5.9	0.0	10.2		

Design stress resultants

Pfa	x/l	M1 (kNm)	Q2 (kN)	M2 (kNm)	Q1 (kN)	Mres (kNm)	Qres (kN)	N (kN)	MT (kNm)

RIB Page: 12

Deformations and internal forces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RESULTS

Total deformation at the reference point

LfNr	vx (m)	vy (m)	vz (m)	dx (1)	dy (1)	dz (1)
1	0.00231	-0.00378	-0.00594	-0.00021	-0.00025	0.00005
2	0.00302	-0.00543	-0.00595	-0.00018	-0.00024	0.00006

Load case: 1

Characteristic internal forces

Pfa	x/l	M1 (kNm)	Q2 (kN)	M2 (kNm)	Q1 (kN)	Mres (kNm)	Qres (kN)	N (kN)	MT (kNm)
1	0.0	-129.4	92.8	101.1	70.7	164.2	116.6	-678.8	0.0
	0.1	-52.7	61.1	42.5	47.0	67.7	77.1		
	0.2	-5.3	95.0	5.8	27.2	7.8	44.9		
	0.3	19.6	16.0	-13.7	12.5	24.0	20.5		
	0.4	29.1	9.9	-21.4	8.4	36.1	8.1		
	0.5	29.2	-2.9	-21.8	-1.9	36.5	3.4		
	0.6	24.6	-5.9	-18.6	-4.3	30.8	7.3		
	0.7	18.2	-6.6	-13.8	-4.9	22.9	8.3		
	0.8	11.7	-6.9	-8.9	-4.5	14.7	7.9		
	0.9	5.6	-5.8	-4.3	-4.4	7.1	7.3		
	1.0	0.0	-5.6	-0.0	-4.3	0.0	7.0		
2	0.0	-129.4	92.8	92.3	64.6	155.9	113.0	-540.2	0.0
	0.1	-52.7	61.1	38.7	42.9	65.4	74.7		
	0.2	-5.3	95.0	5.2	24.8	7.4	42.9		
	0.3	19.6	16.0	-12.6	11.6	23.3	19.8		
	0.4	29.1	9.9	-19.6	8.1	35.1	4.9		
	0.5	29.2	-2.9	-20.0	-1.7	35.4	3.4		
	0.6	24.6	-5.9	-17.0	-3.9	29.9	7.1		
	0.7	18.2	-6.6	-12.6	-4.5	22.2	8.0		
	0.8	11.7	-6.9	-8.2	-4.4	14.3	7.7		
	0.9	5.6	-5.8	-4.0	-4.1	6.9	7.1		
	1.0	0.0	-5.6	0.0	-3.9	0.0	6.8		

Characteristic internal forces

Pfa	x/l	M1 (kNm)	Q2 (kN)	M2 (kNm)	Q1 (kN)	Mres (kNm)	Qres (kN)	N (kN)	MT (kNm)
3	0.0	-129.4	92.8	83.4	58.5	153.9	109.7	-401.6	0.0
	0.1	-52.7	61.1	34.9	38.8	63.2	72.4		
	0.2	-5.3	95.0	4.6	22.5	7.0	41.6		
	0.3	19.6	16.0	-11.5	10.5	22.7	19.2		
	0.4	29.1	9.9	-17.5	2.5	34.1	4.5		
	0.5	29.2	-2.9	-18.1	-1.6	34.4	3.0		
	0.6	24.6	-5.9	-15.4	-3.6	29.0	6.9		
	0.7	18.2	-6.6	-11.5	-4.1	21.5	7.8		
	0.8	11.7	-6.9	-7.4	-4.0	13.8	7.4		
	0.9	5.6	-5.8	-3.6	-3.7	6.7	6.9		
	1.0	0.0	-5.6	-0.0	-3.5	0.0	6.6		
4	0.0	-129.4	92.8	74.6	52.4	149.3	106.5	-263.0	0.0
	0.1	-52.7	61.1	31.2	34.7	61.2	70.9		
	0.2	-5.3	95.0	4.1	20.1	6.6	40.3		
	0.3	19.6	16.0	-10.2	9.4	22.2	18.6		
	0.4	29.1	9.9	-16.0	2.4	33.2	4.6		
	0.5	29.2	-2.9	-16.2	-1.4	33.4	3.2		
	0.6	24.6	-5.9	-13.8	-3.2	28.2	6.7		
	0.7	18.2	-6.6	-10.3	-3.7	20.9	7.6		
	0.8	11.7	-6.9	-6.6	-3.5	13.4	7.2		
	0.9	5.6	-5.8	-3.2	-3.3	6.5	6.7		

RIB Page: 3

Clear documentation including graphics