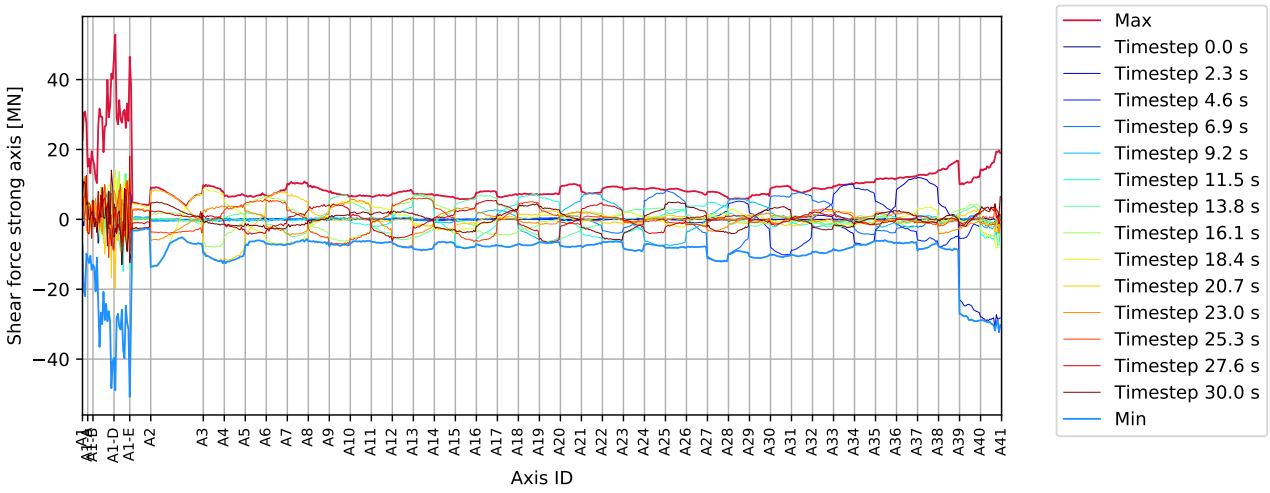

Figure 3.1572: P A39 180deg - bridgegirder : Shear force strong axis [MN]

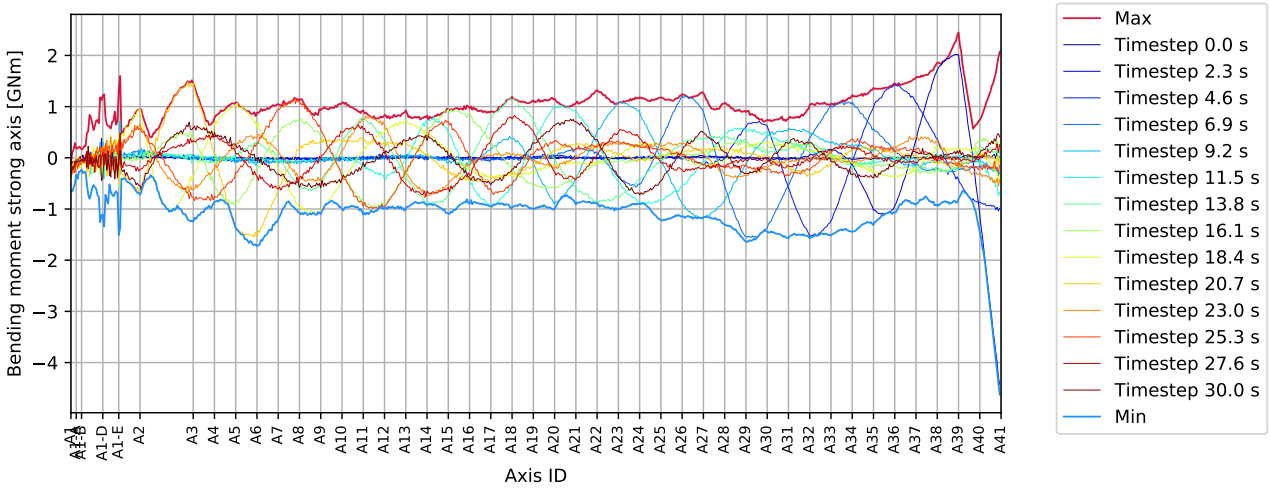

Figure 3.1573: P A39 180deg - bridgegirder : Bending moment strong axis [GNm]

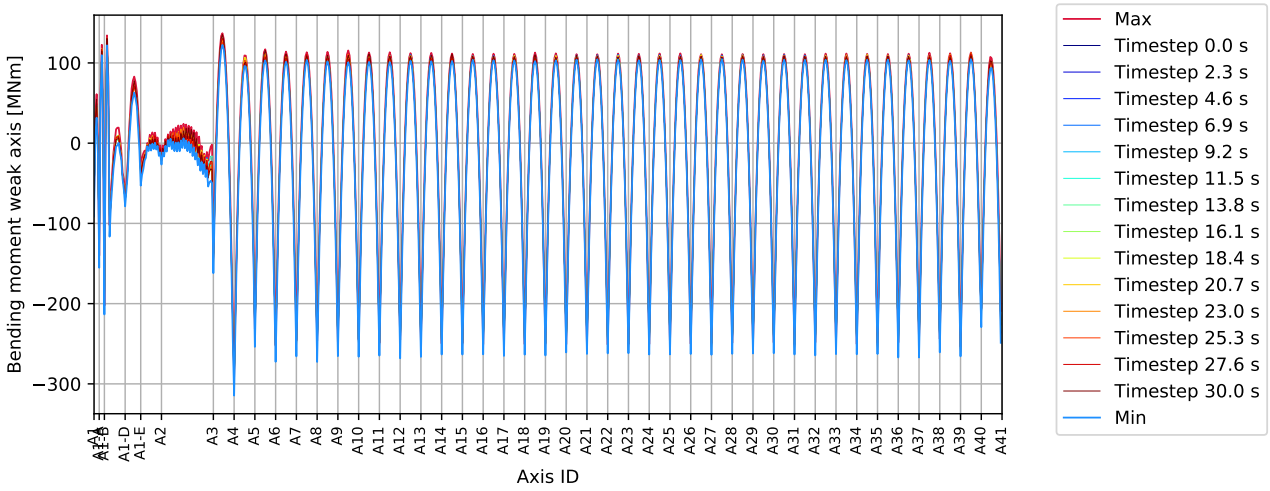

Figure 3.1574: P A39 180deg - bridgegirder : Bending moment weak axis [MNm]

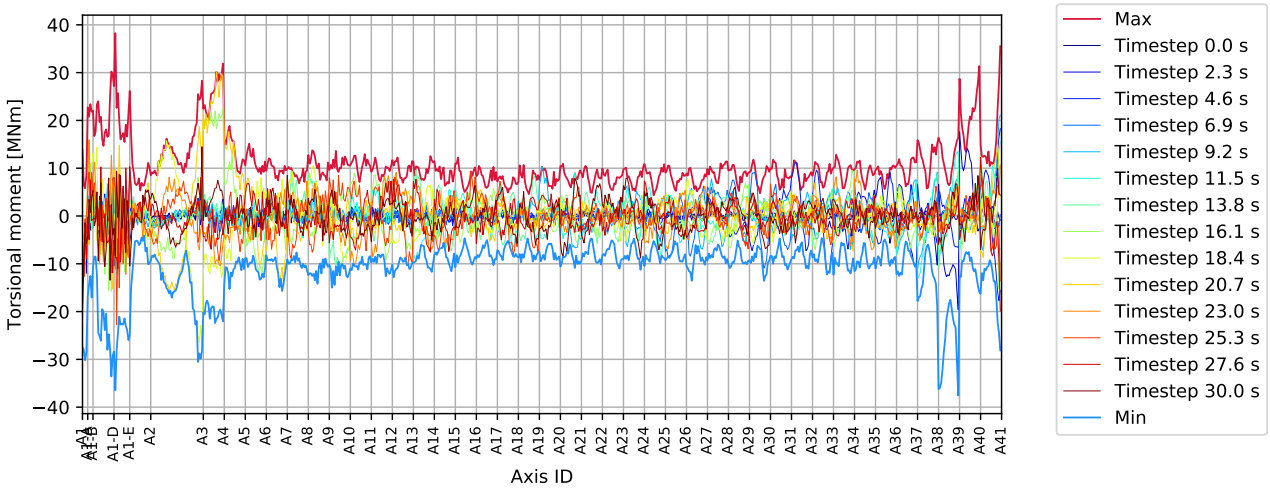

Figure 3.1575: P A39 180deg - bridgegirder : Torsional moment [MNm]

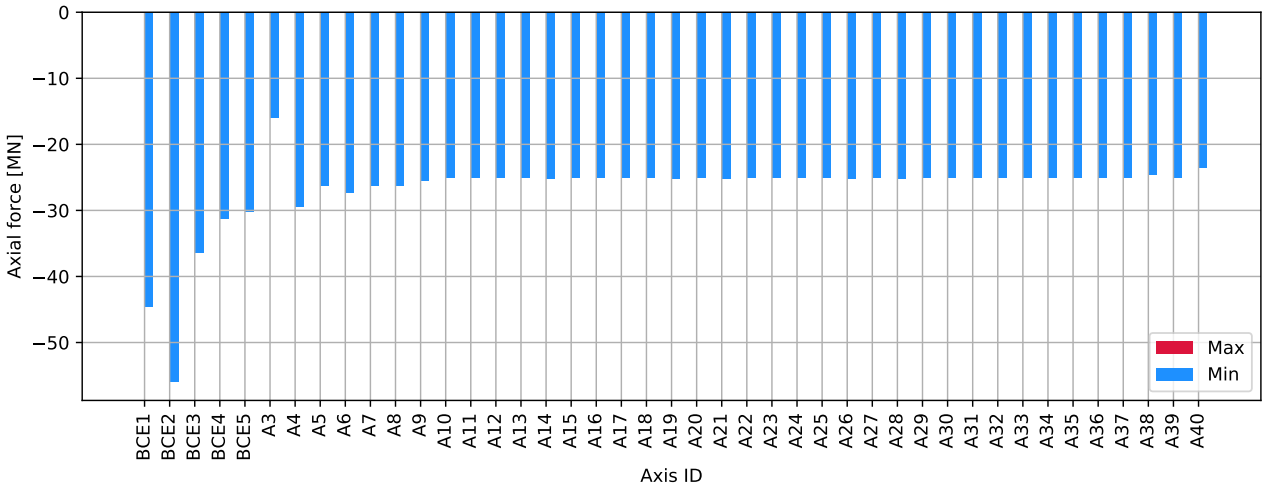

Figure 3.1576: P A39 180deg - columns bottom : Axial force [MN]

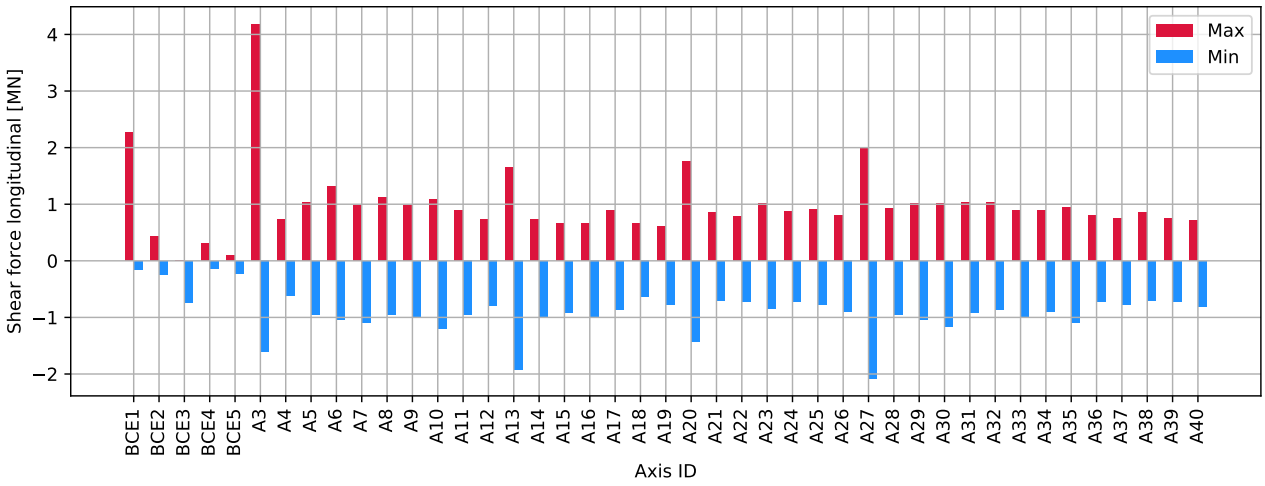

Figure 3.1577: P A39 180deg - columns bottom : Shear force longitudinal [MN]

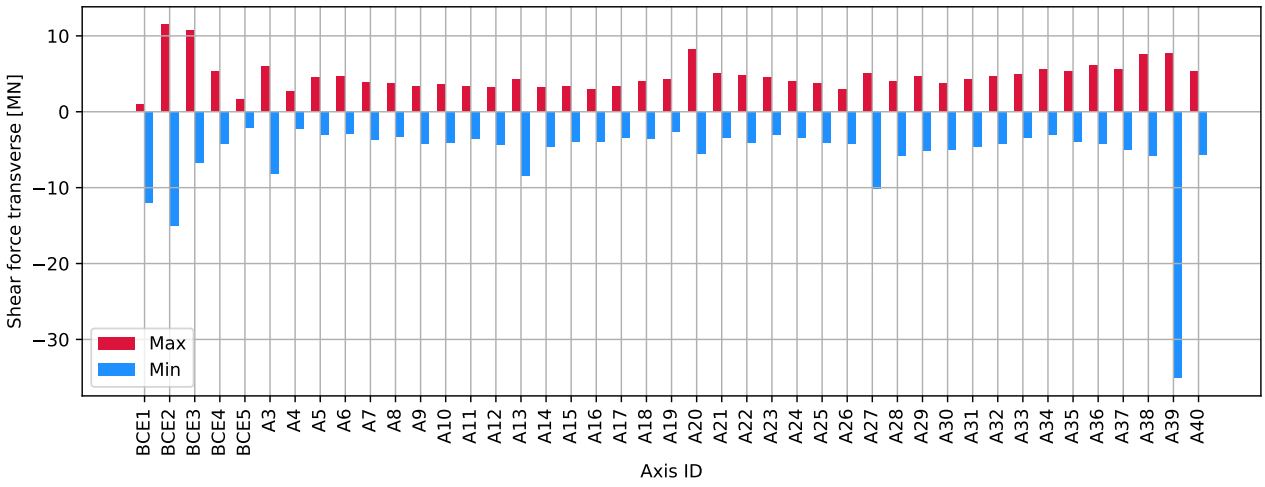

Figure 3.1578: P A39 180deg - columns bottom : Shear force transverse [MN]

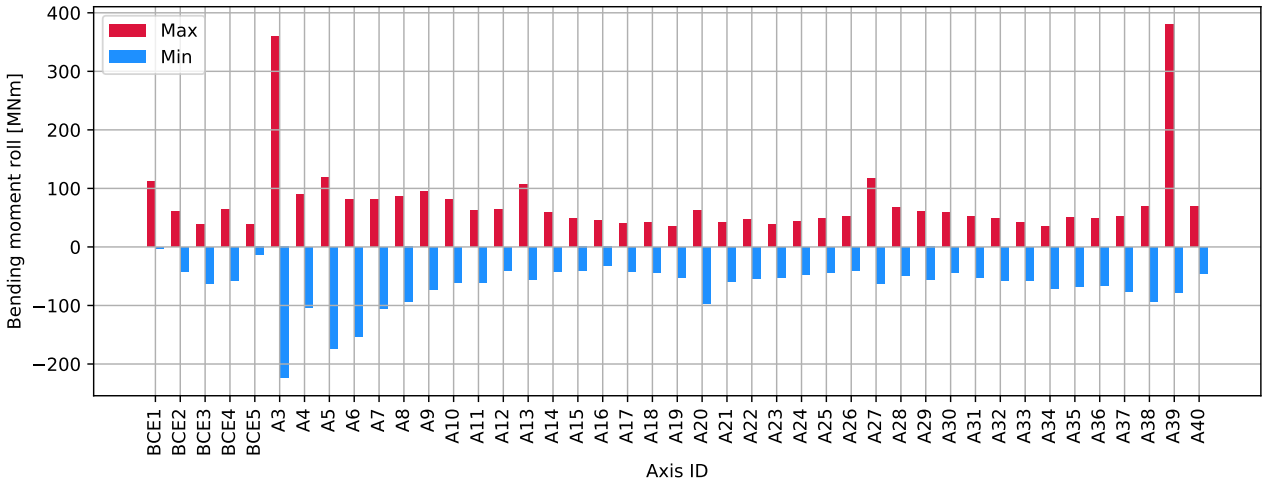

Figure 3.1579: P A39 180deg - columns bottom : Bending moment roll [MNm]

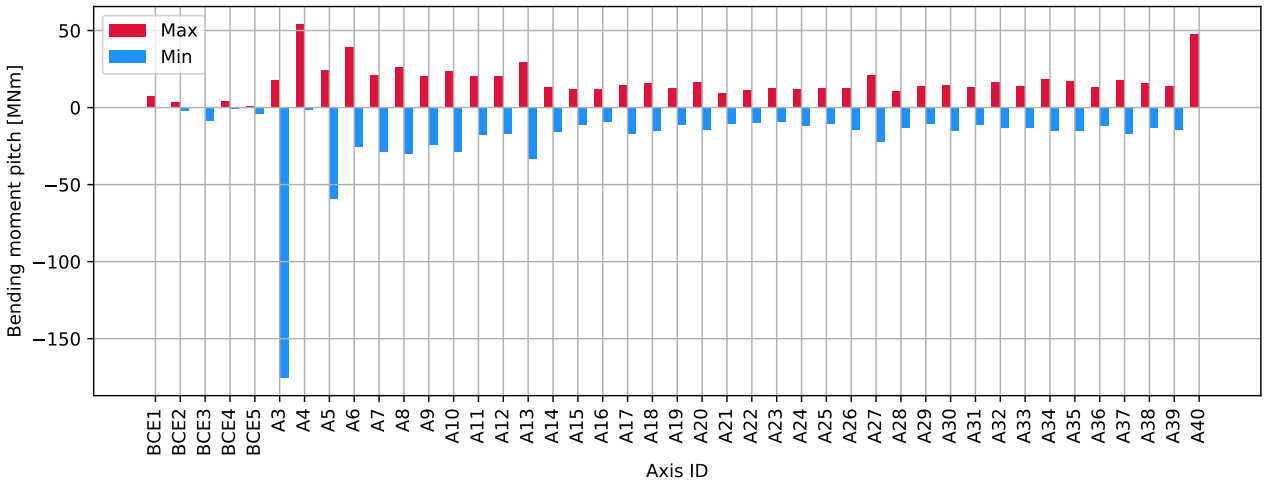

Figure 3.1580: P A39 180deg - columns bottom : Bending moment pitch [MNm]

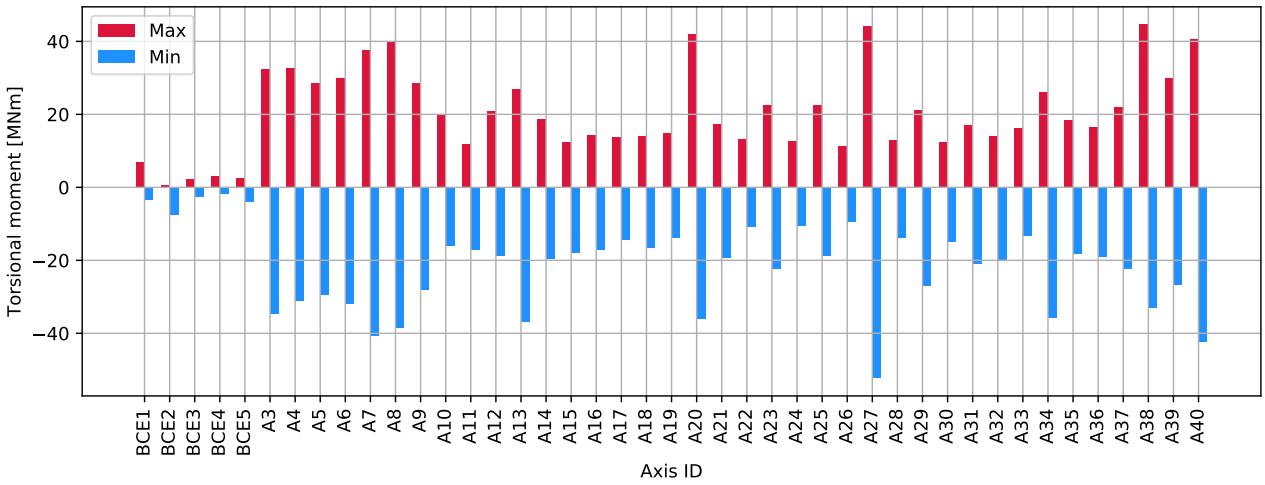

Figure 3.1581: P A39 180deg - columns bottom : Torsional moment [MNm]

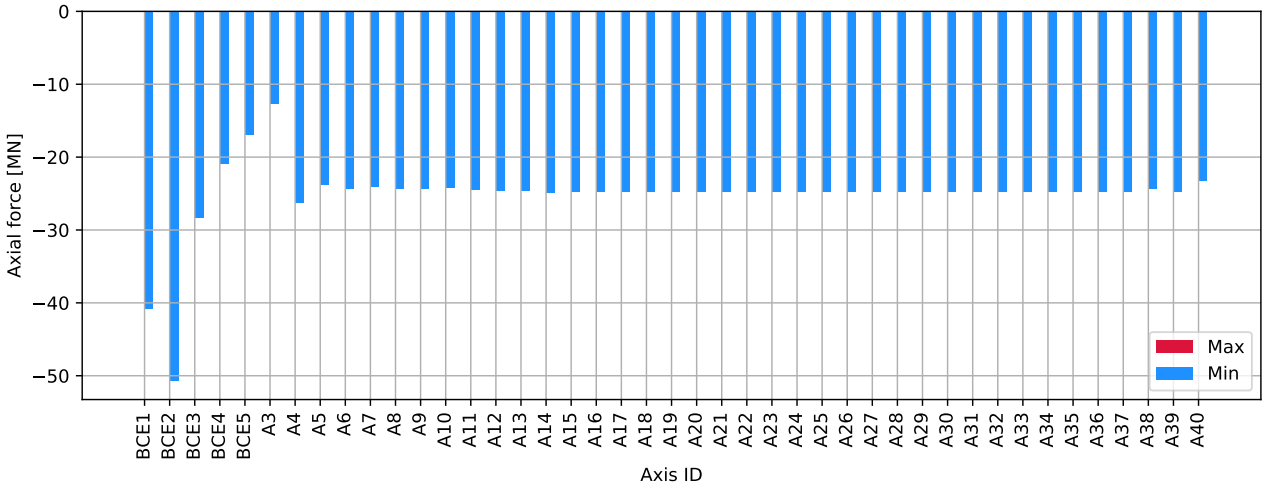

Figure 3.1582: P A39 180deg - columns top : Axial force [MN]

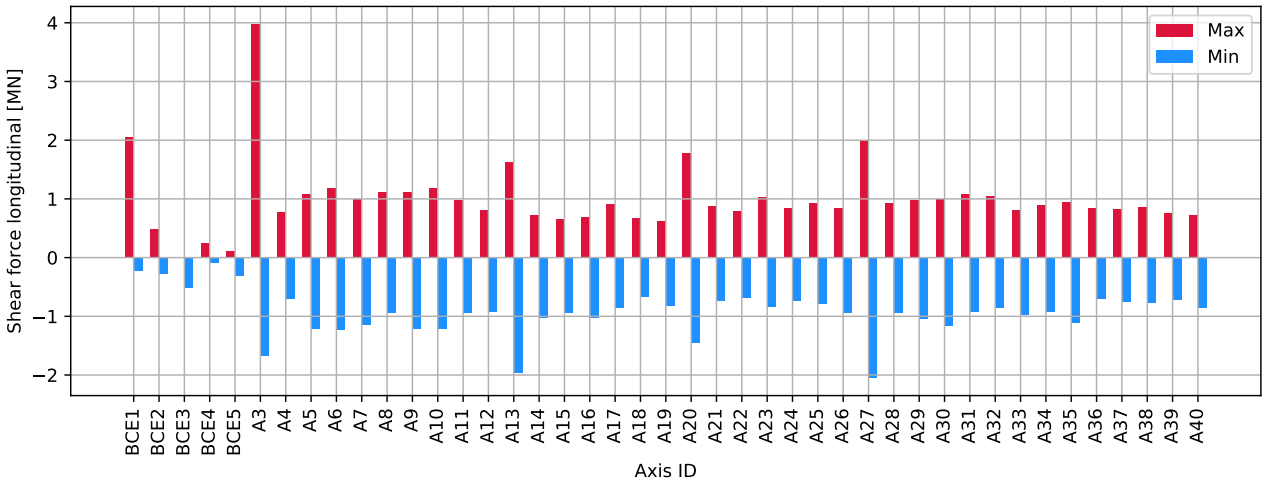

Figure 3.1583: P A39 180deg - columns top : Shear force longitudinal [MN]

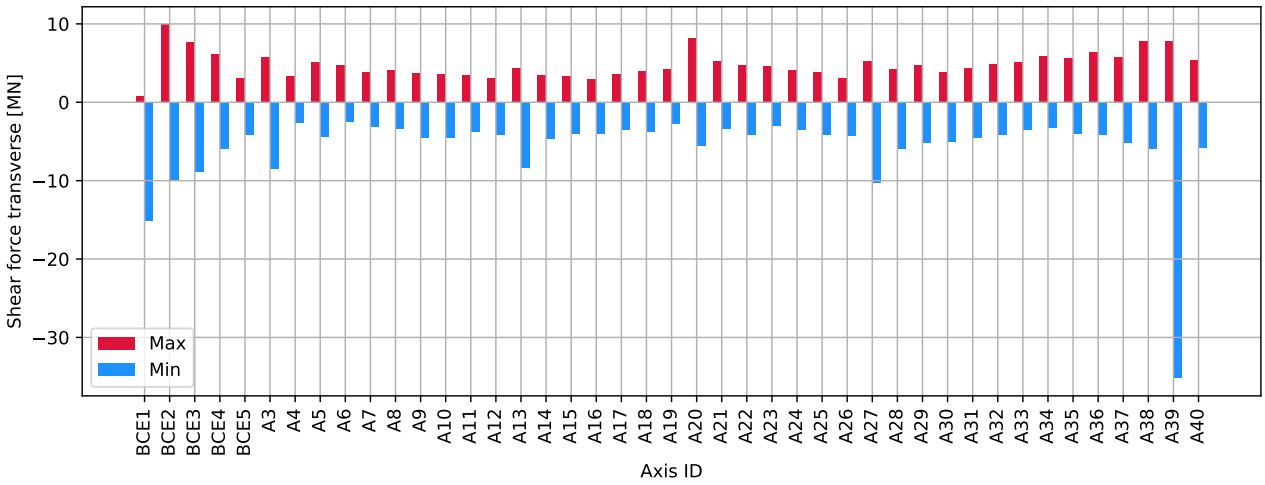

Figure 3.1584: P A39 180deg - columns top : Shear force transverse [MN]

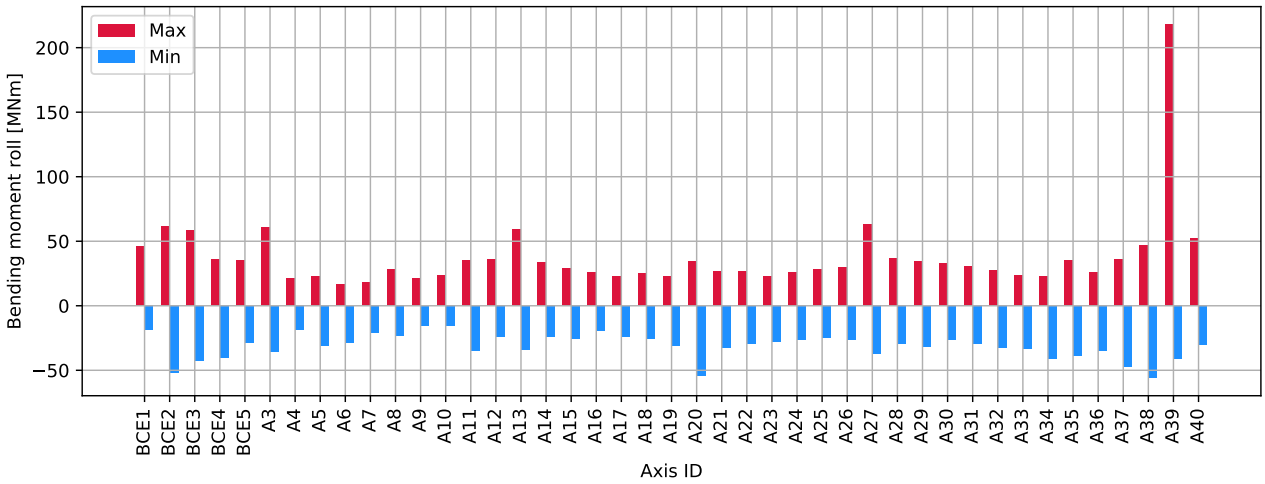

Figure 3.1585: P A39 180deg - columns top : Bending moment roll [MNm]

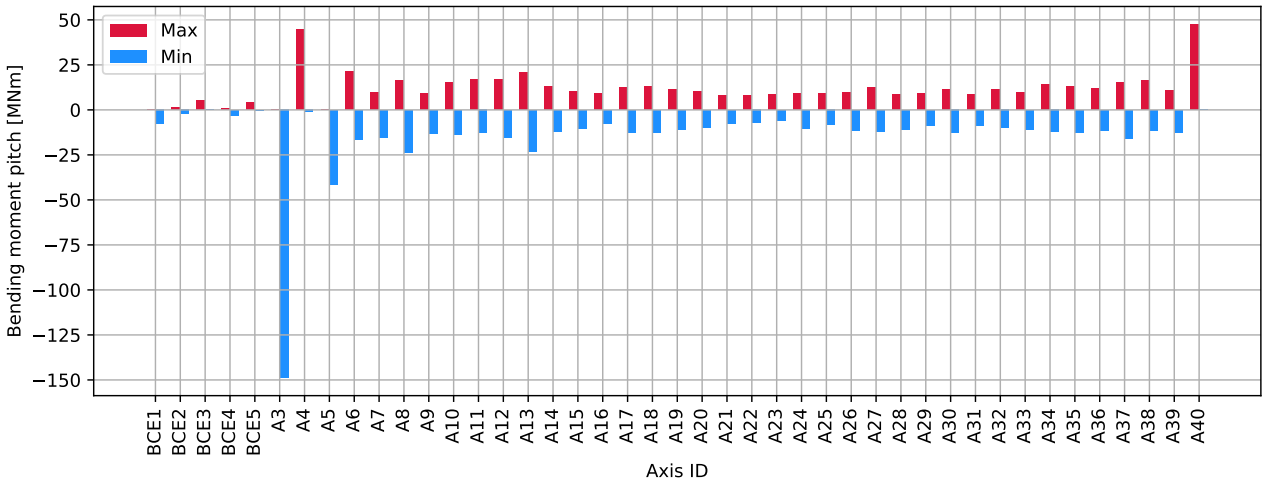

Figure 3.1586: P A39 180deg - columns top : Bending moment pitch [MNm]

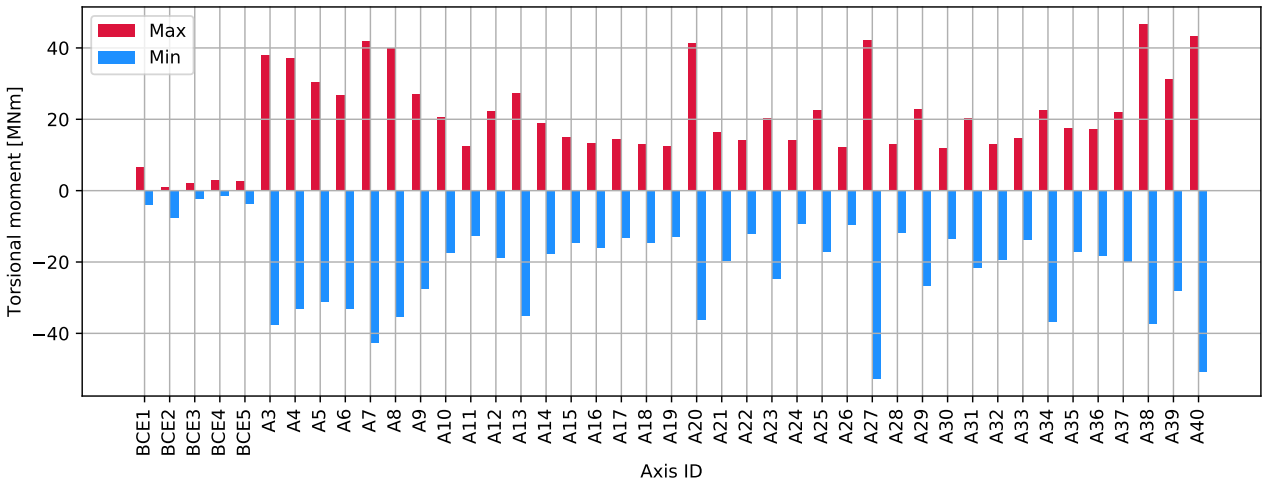

Figure 3.1587: P A39 180deg - columns top : Torsional moment [MNm]

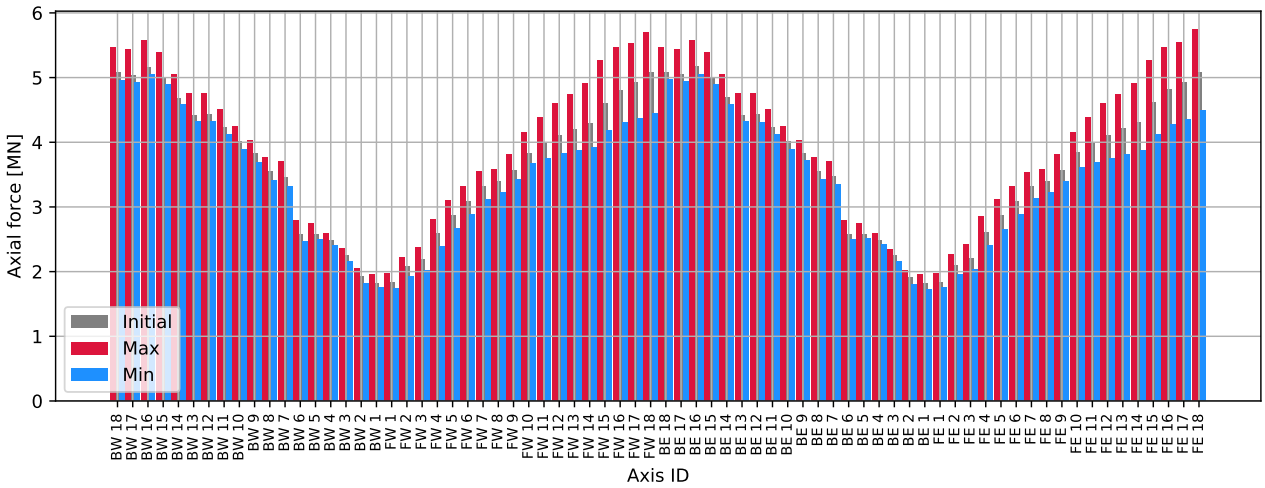

Figure 3.1588: P A39 180deg - cables : Axial force [MN]

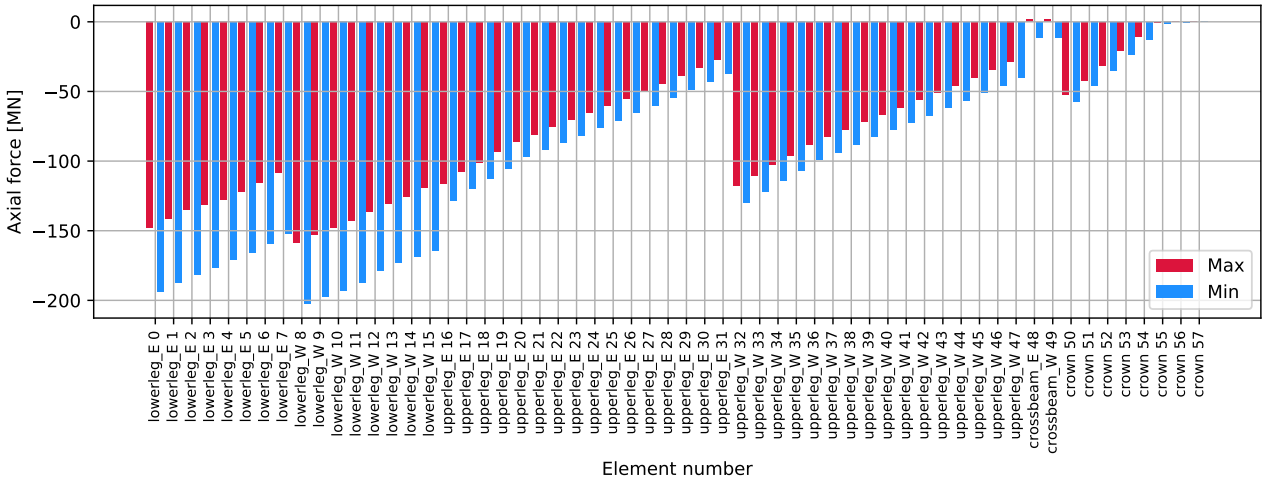

Figure 3.1589: P A39 180deg - tower: Axial force [MN]

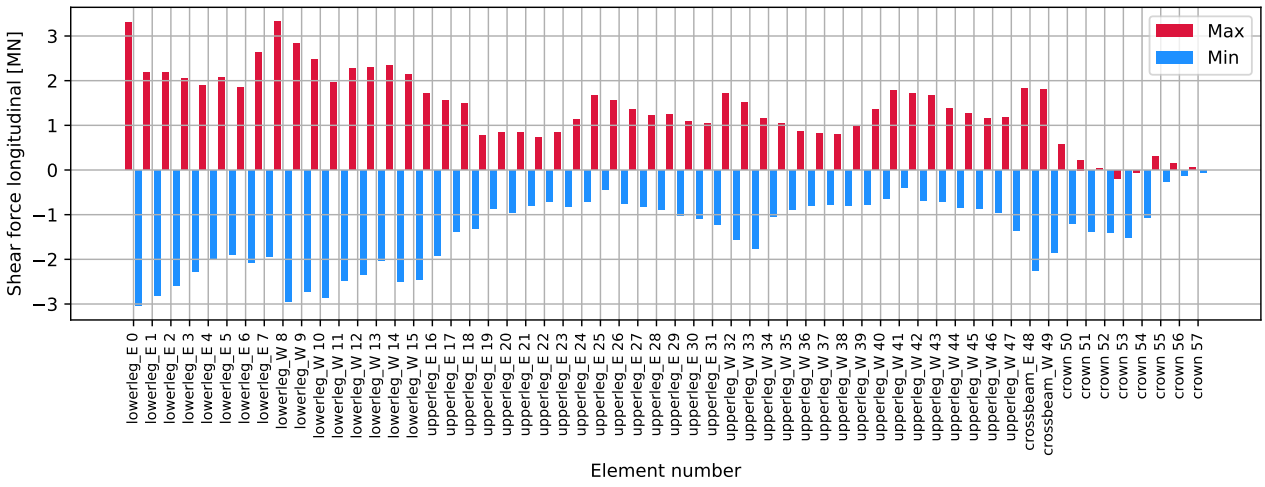

Figure 3.1590: P A39 180deg - tower: Shear force longitudinal [MN]

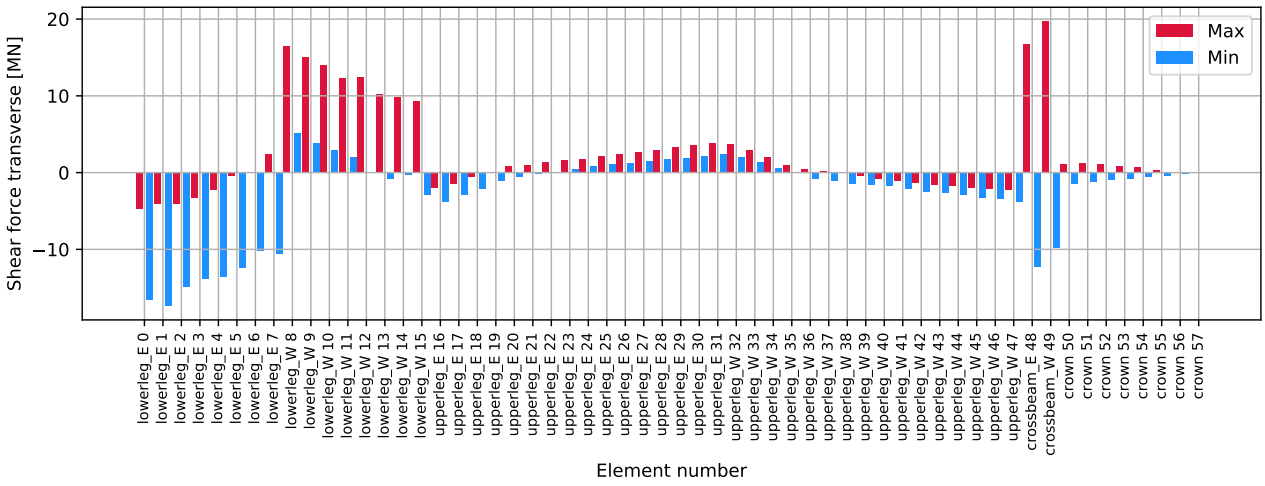

Figure 3.1591: P A39 180deg - tower: Shear force transverse [MN]

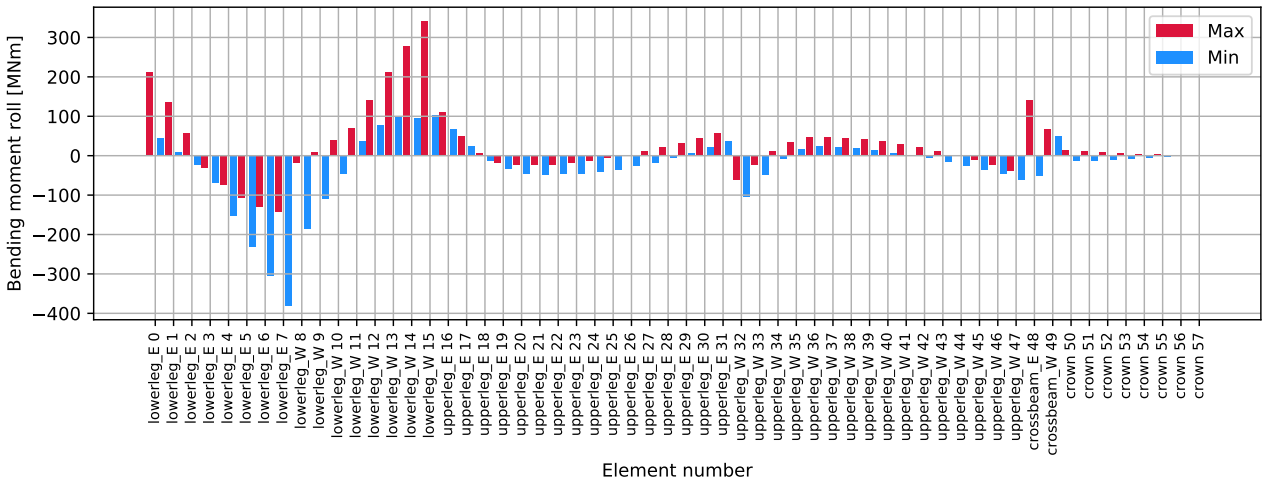

Figure 3.1592: P A39 180deg - tower: Bending moment roll [MNm]

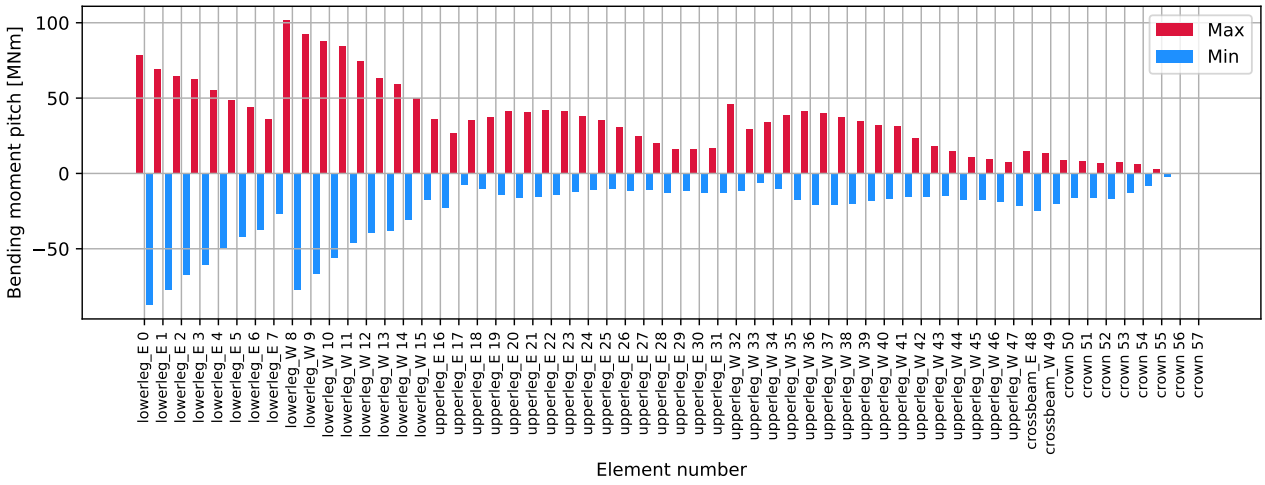

Figure 3.1593: P A39 180deg - tower: Bending moment pitch [MNm]

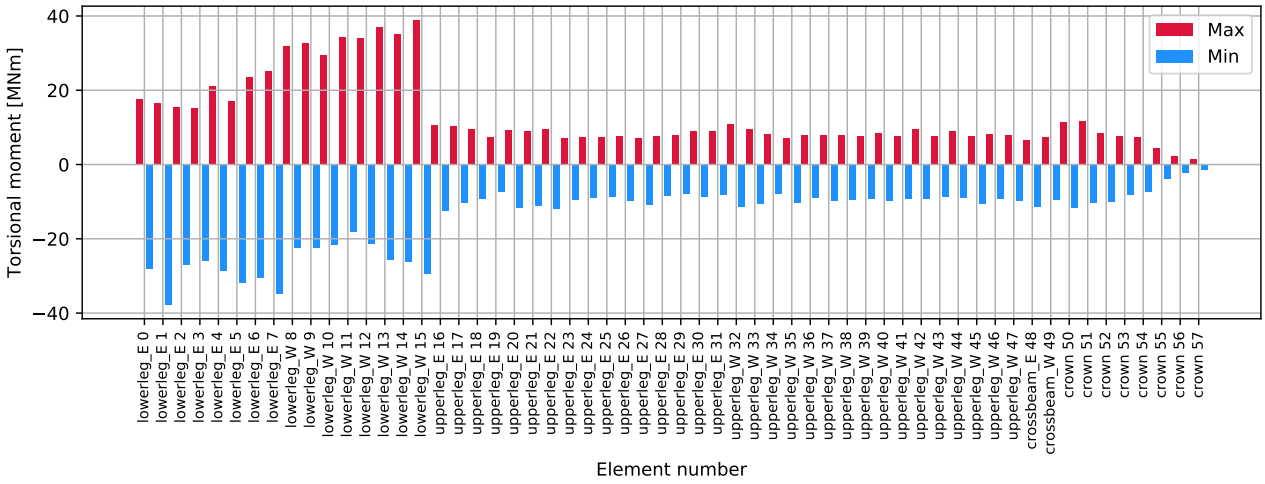

Figure 3.1594: P A39 180deg - tower: Torsional moment [MNm]

3.35.3 Time series

Note : Time series are filtered using a Saviotzky-Golay filter for increased readability of the time history plots. Hence, maximum values that occur due to a rapid vibration are not shown in the plots. For maximum values, refer to the tabulated data.
All elements are numbered from South to North, bottom to top

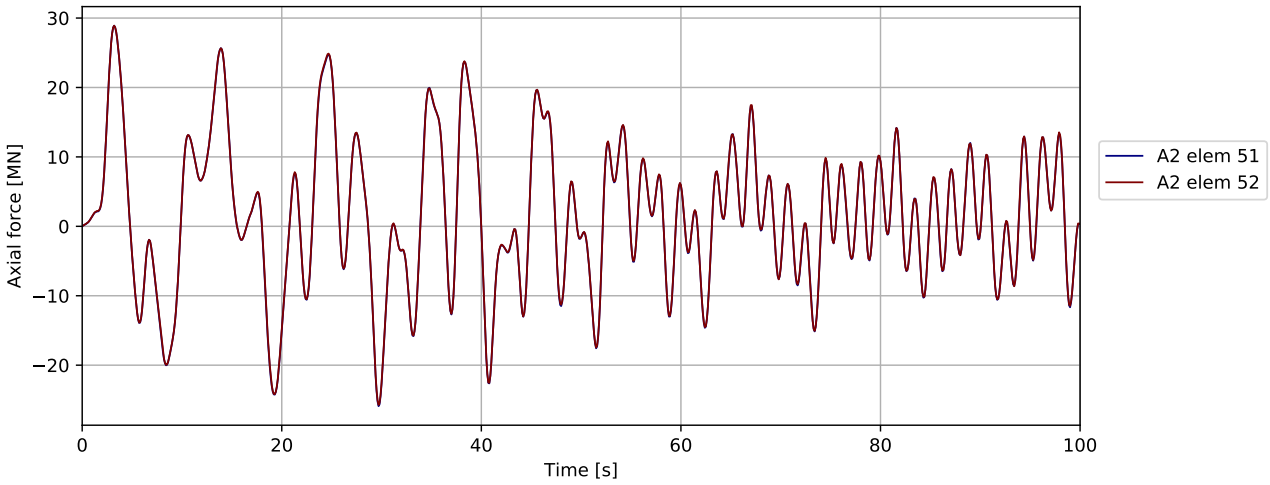

Figure 3.1595: P A39 180deg - bridgegirder @ pylon: Axial force [MN]

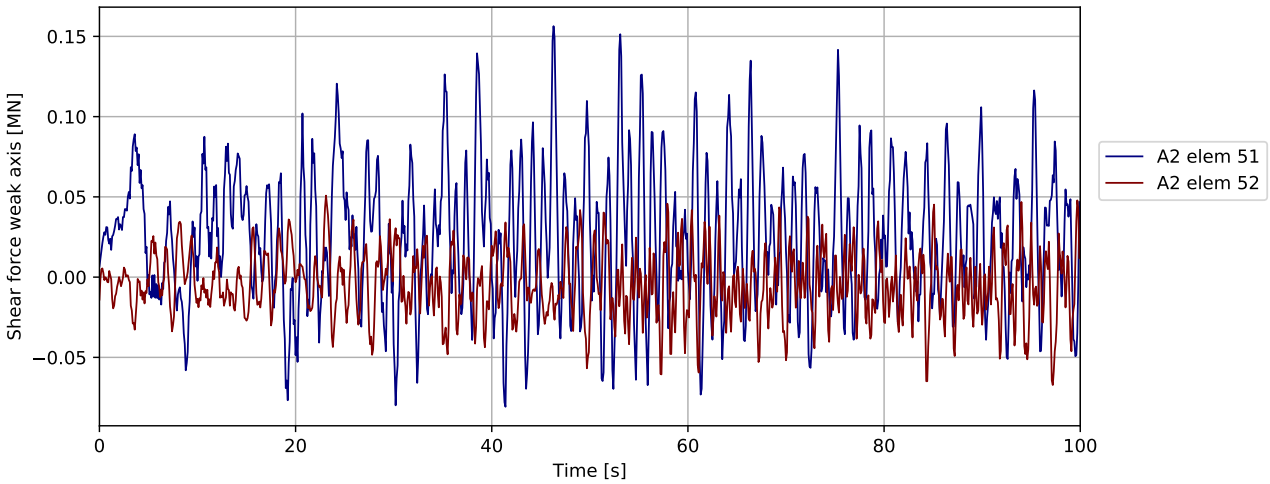

Figure 3.1596: P A39 180deg - bridgegirder @ pylon: Shear force weak axis [MN]

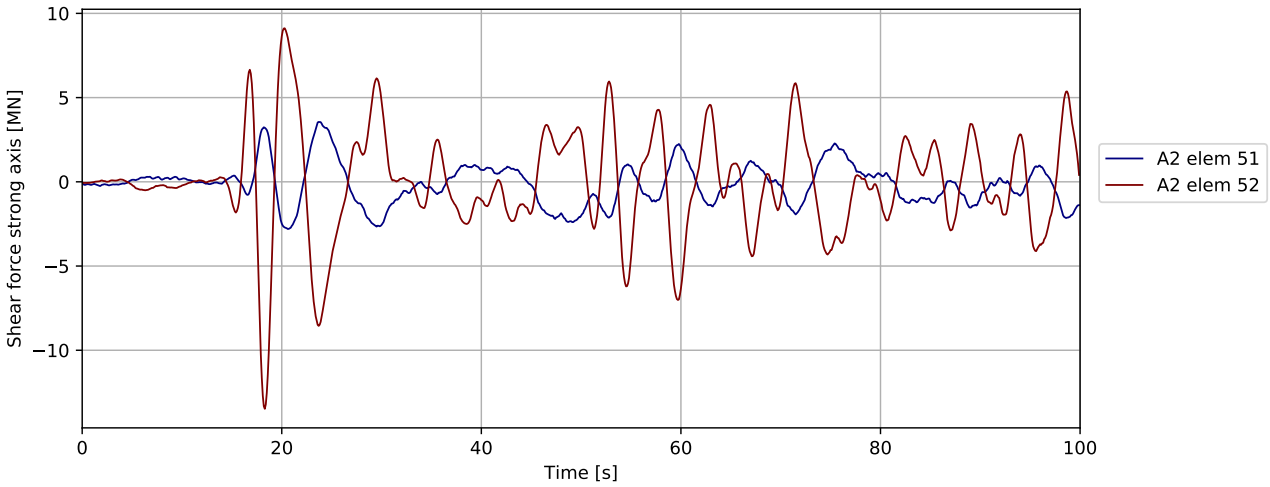

Figure 3.1597: P A39 180deg - bridgegirder @ pylon: Shear force strong axis [MN]

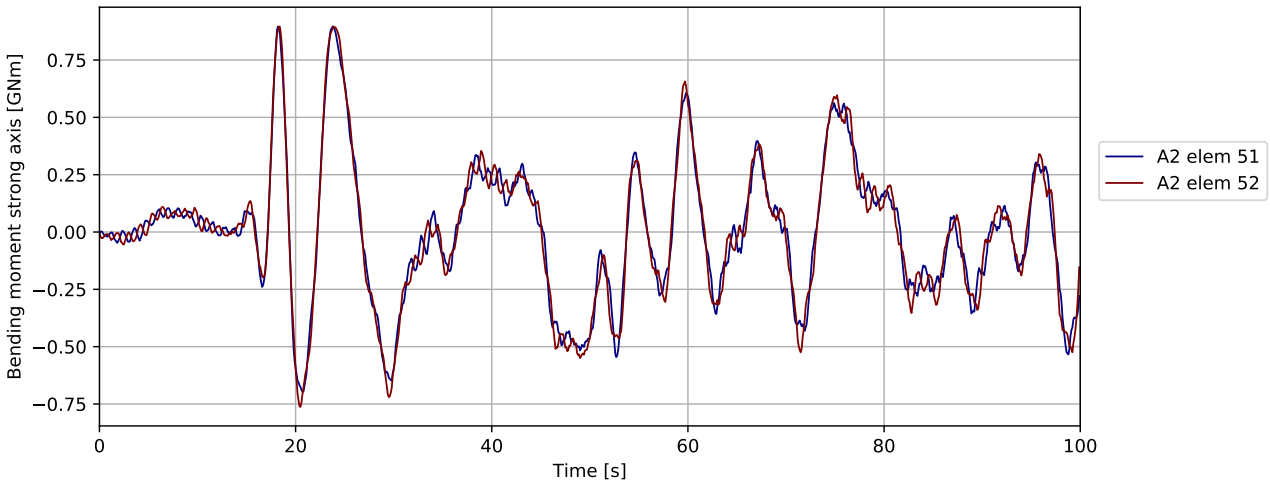

Figure 3.1598: P A39 180deg - bridgegirder @ pylon: Bending moment strong axis [GNm]

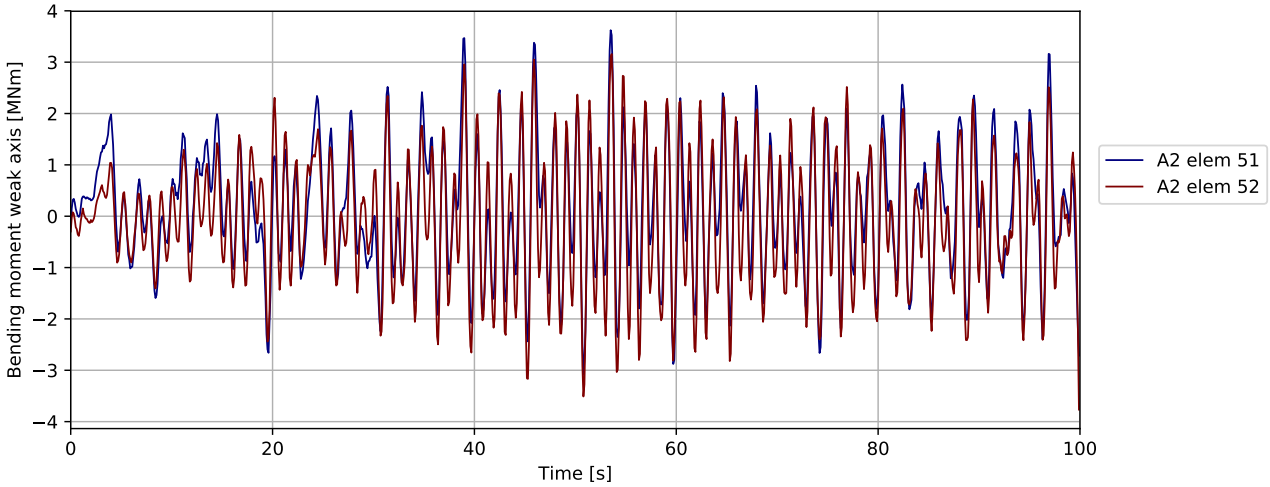

Figure 3.1599: P A39 180deg - bridgegirder @ pylon: Bending moment weak axis [MNm]

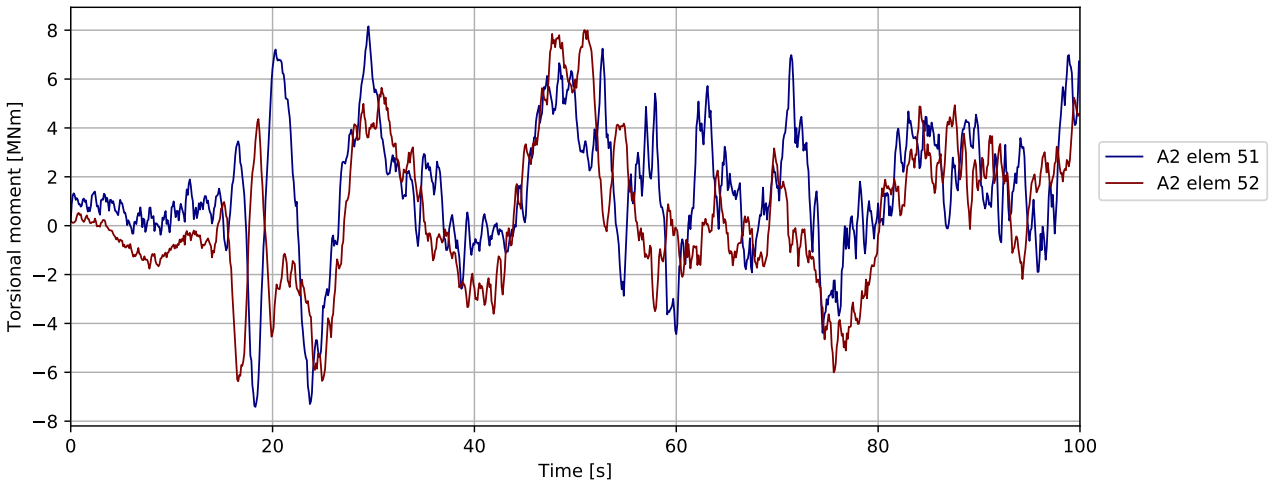

Figure 3.1600: P A39 180deg - bridgegirder @ pylon: Torsional moment [MNm]

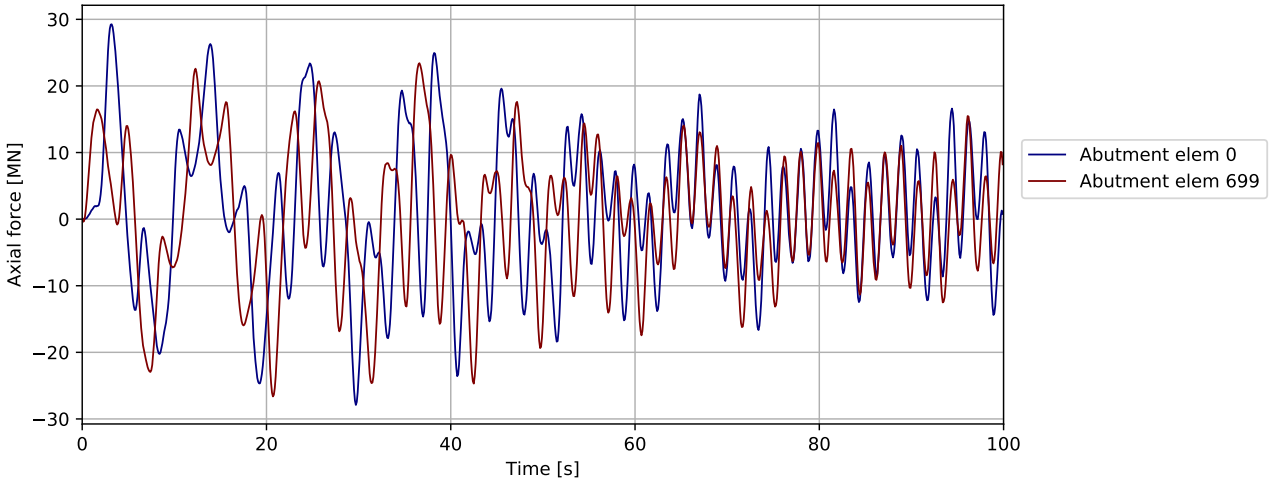

Figure 3.1601: P A39 180deg - bridgegirder @abutments: Axial force [MN]

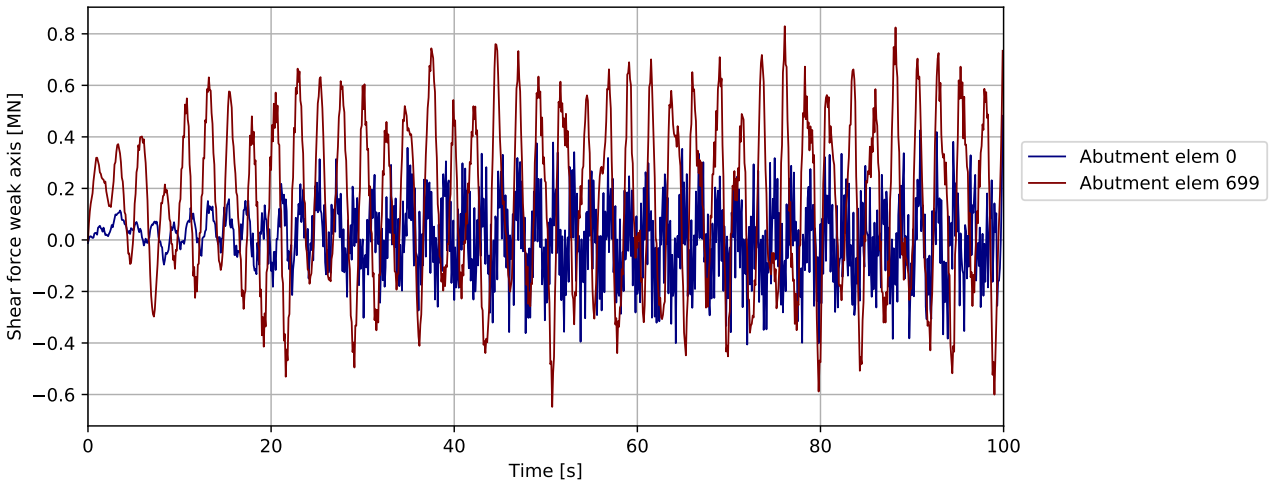

Figure 3.1602: P A39 180deg - bridgegirder @abutments: Shear force weak axis [MN]

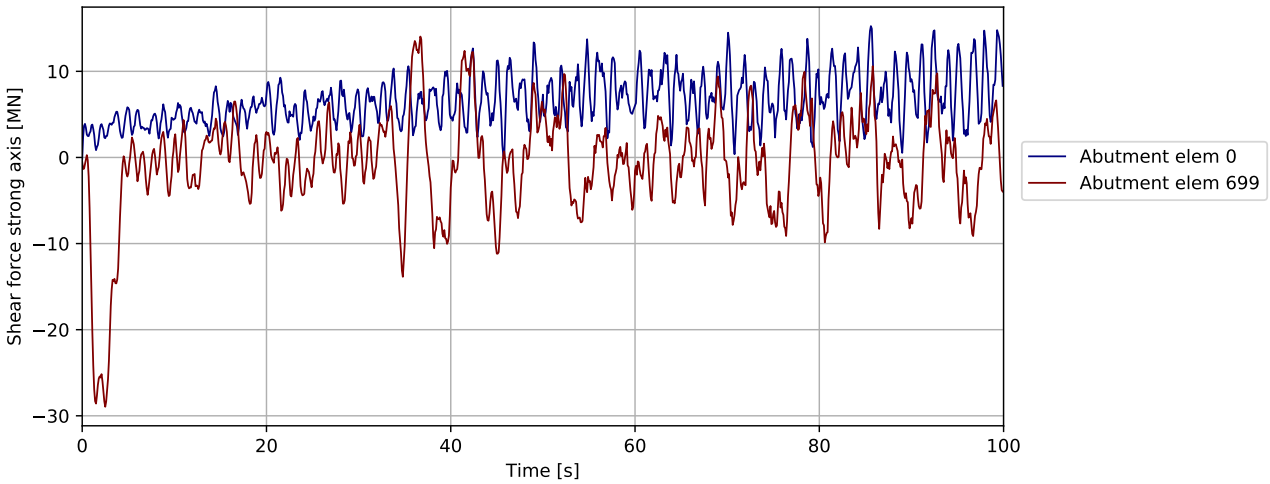

Figure 3.1603: P A39 180deg - bridgegirder @abutments: Shear force strong axis [MN]

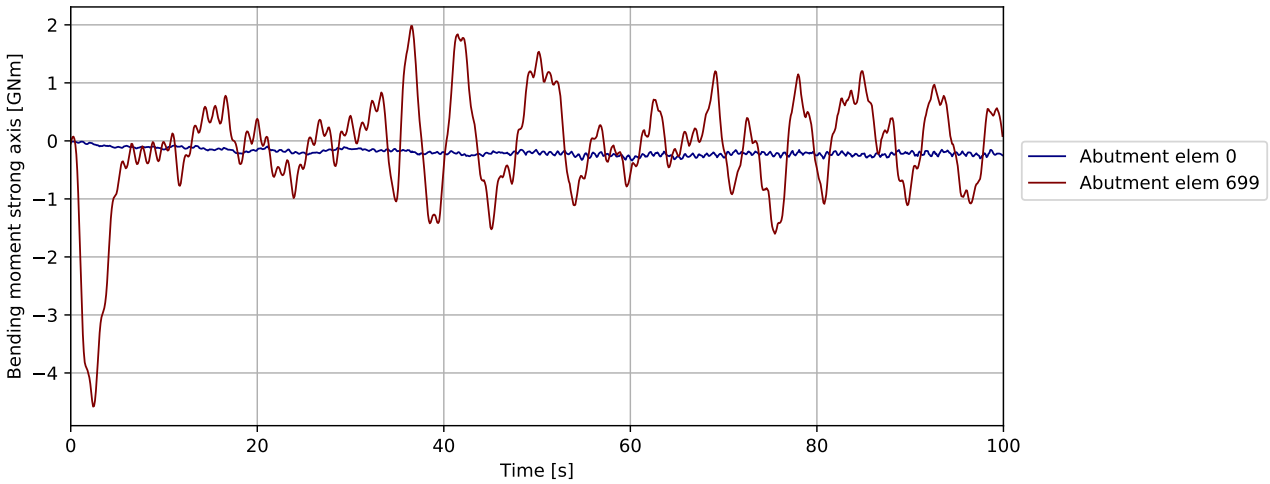

Figure 3.1604: P A39 180deg - bridgegirder @abutments: Bending moment strong axis [GNm]

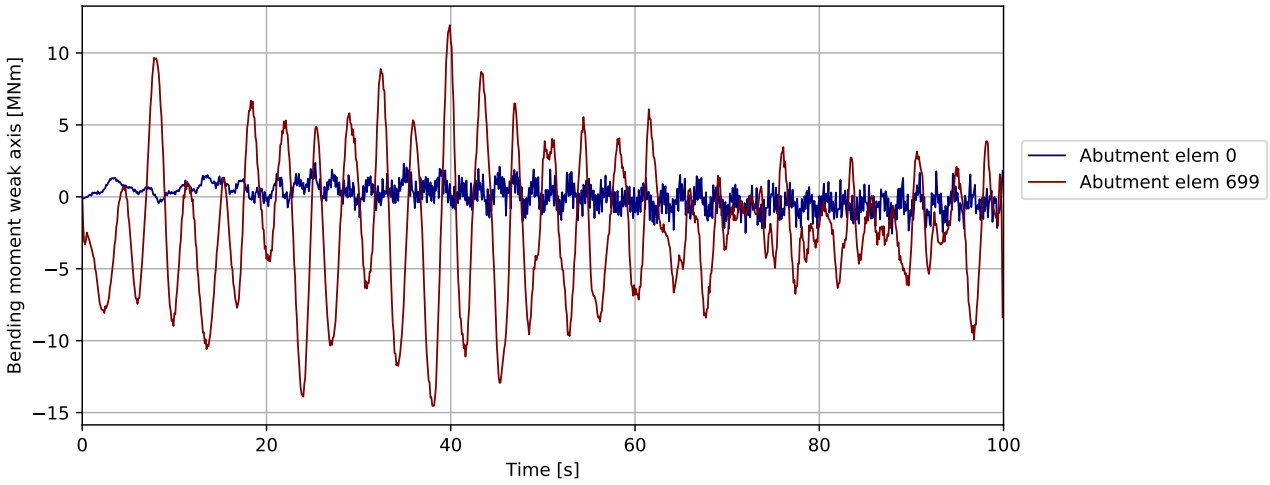

Figure 3.1605: P A39 180deg - bridgegirder @abutments: Bending moment weak axis [MNm]

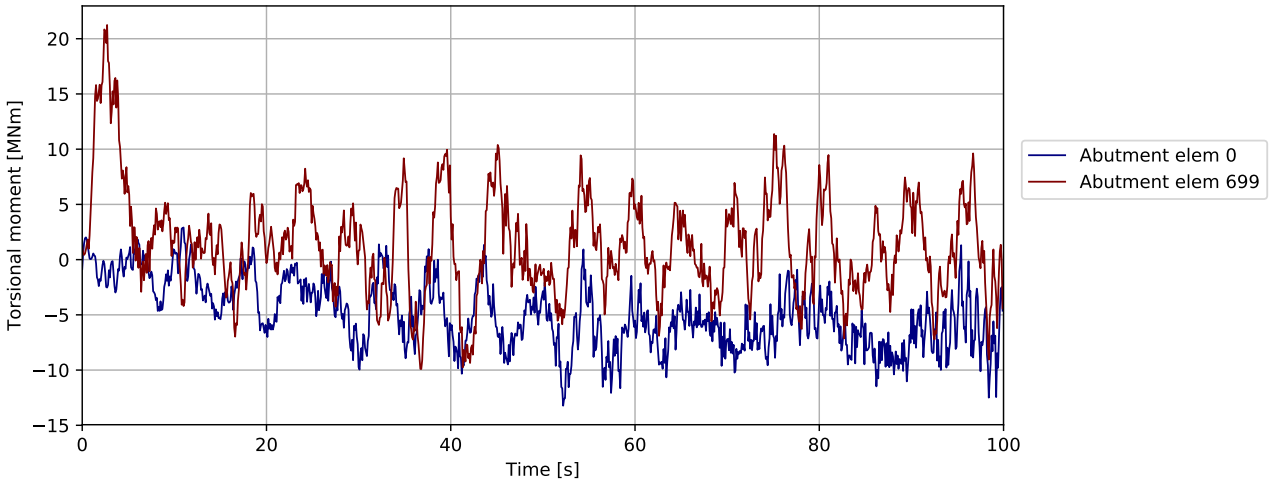

Figure 3.1606: P A39 180deg - bridgegirder @abutments: Torsional moment [MNm]

Note : Compressive spring force is negative

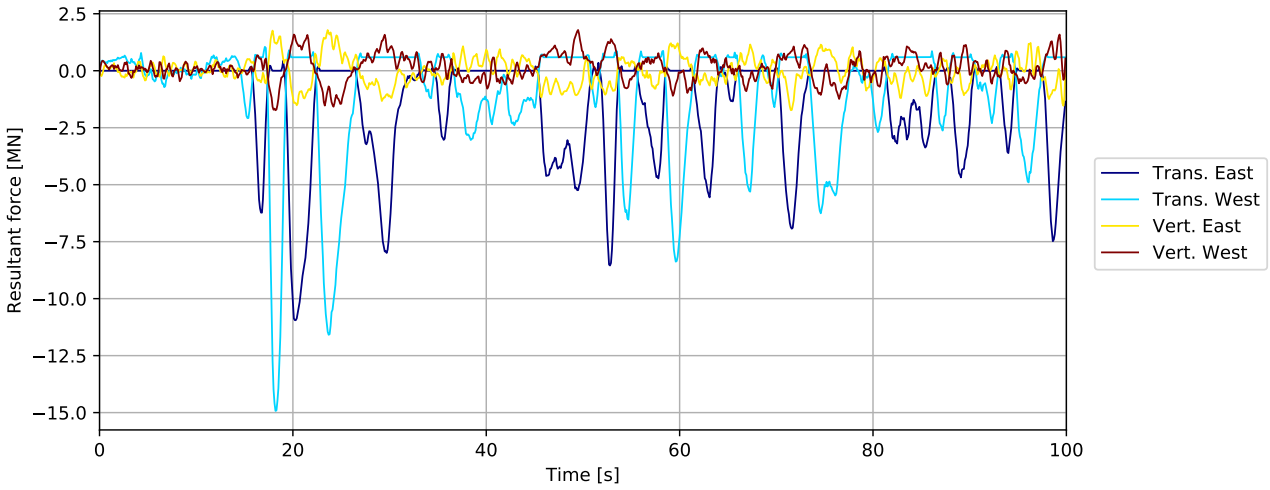

Figure 3.1607: P A39 180deg - bridgegirder supports in tower: Resultant force [MN]

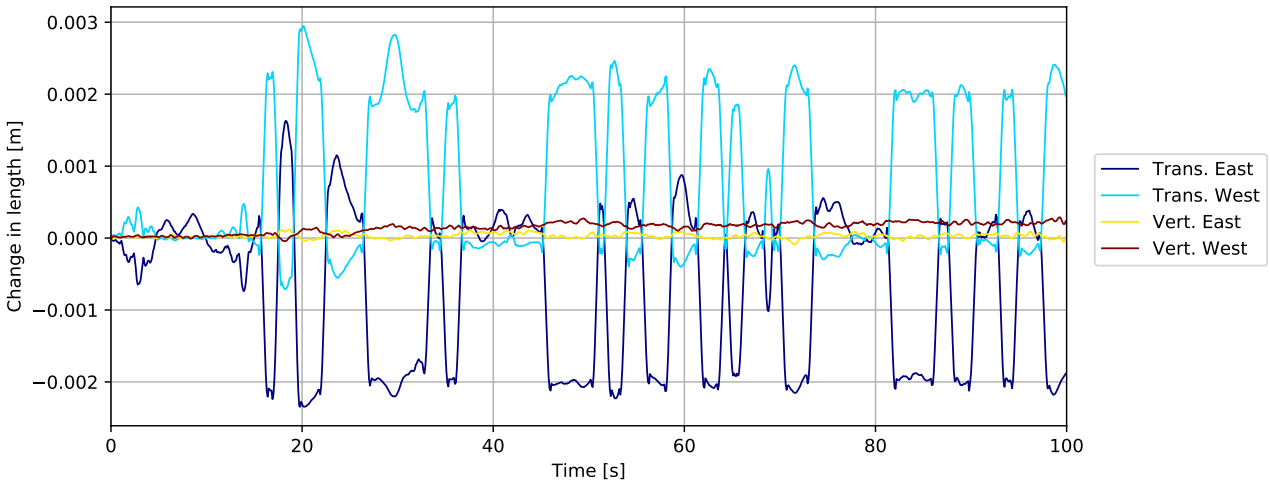

Figure 3.1608: P A39 180deg - bridgegirder supports in tower: Change in length [m]

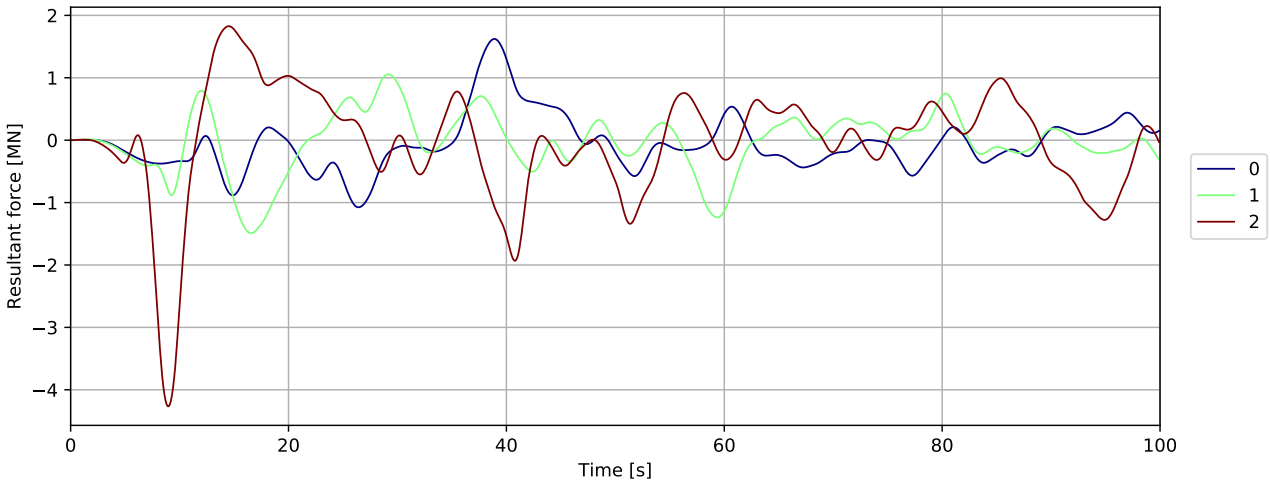

Figure 3.1609: Mooring force

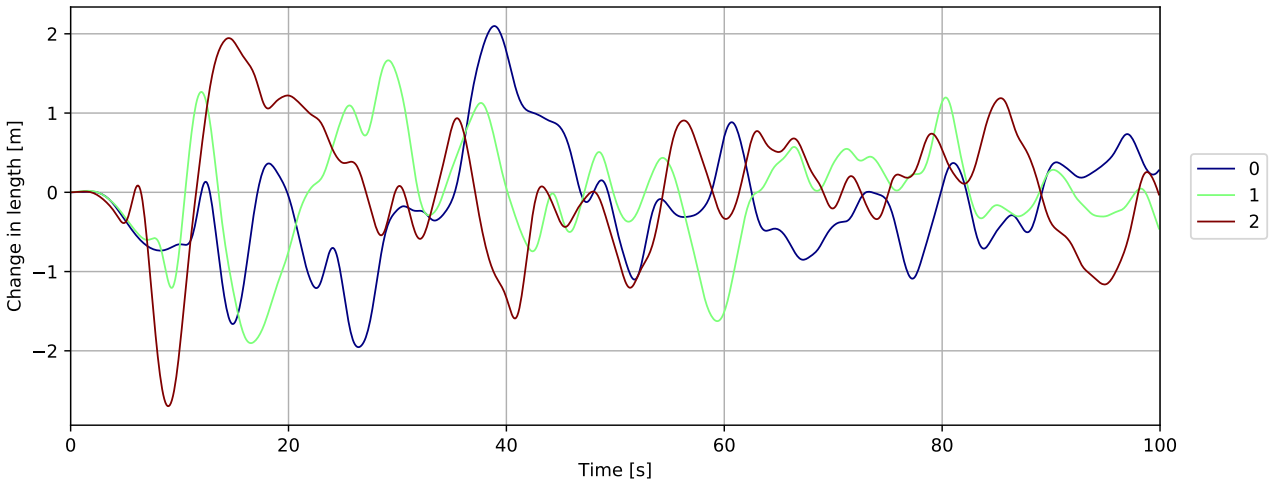

Figure 3.1610: Mooring displacement

3.36 PontoonA40 180deg

3.36.1 Overall response

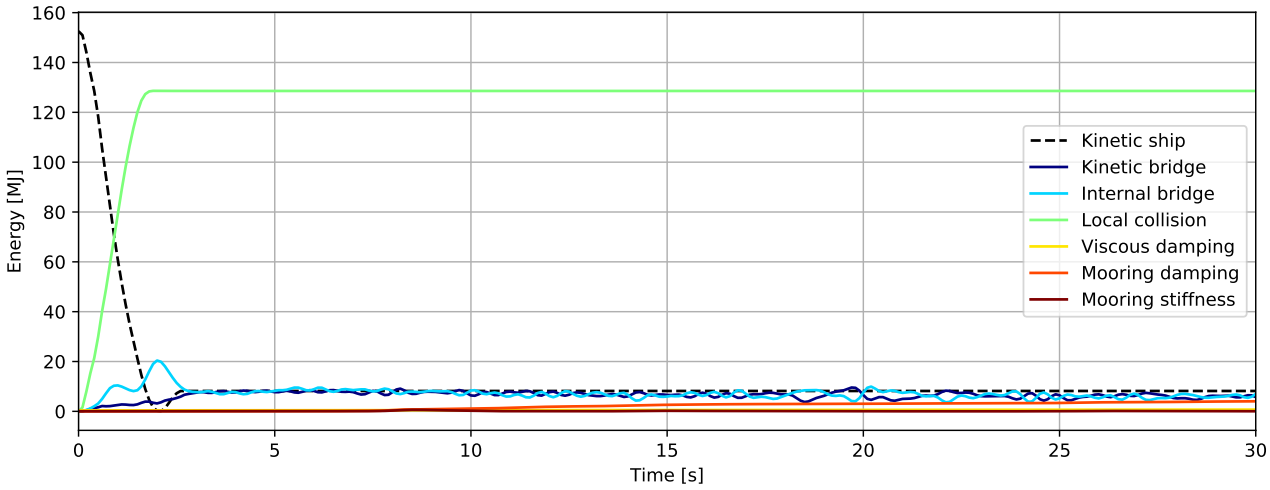

Figure 3.1611: Energy [MJ] - initial phase

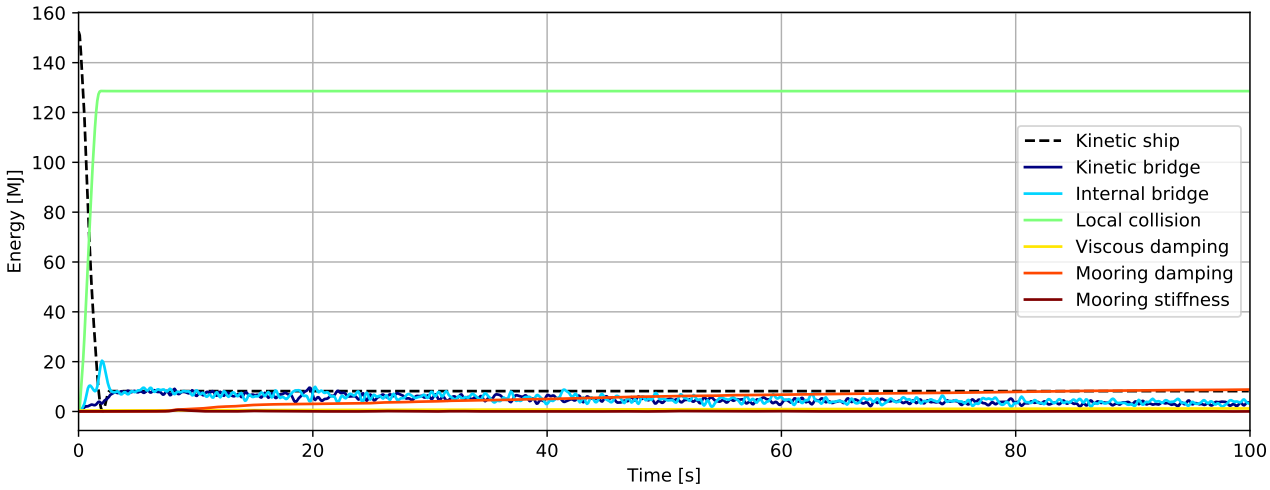

Figure 3.1612: Energy [MJ]

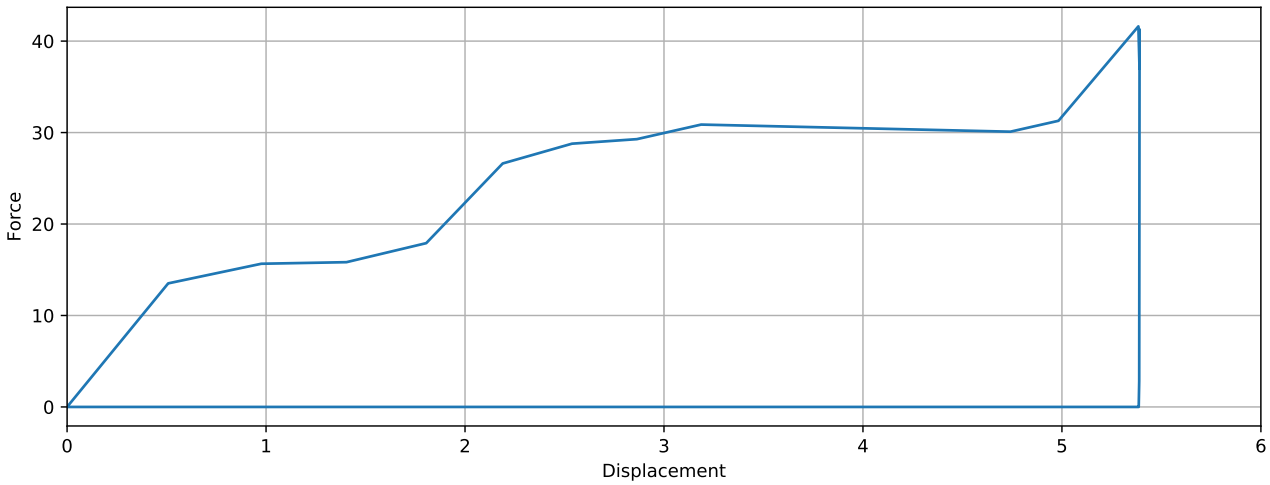

Figure 3.1613: Simulated local collision force-displacement

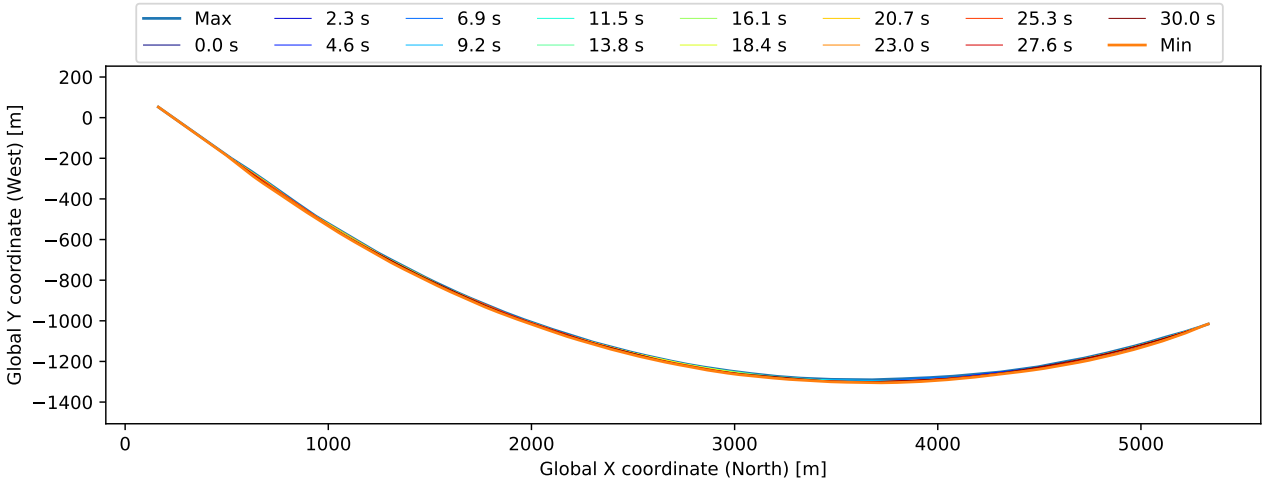

Figure 3.1614: Bridgegirder deflection (10x displacment scaling)

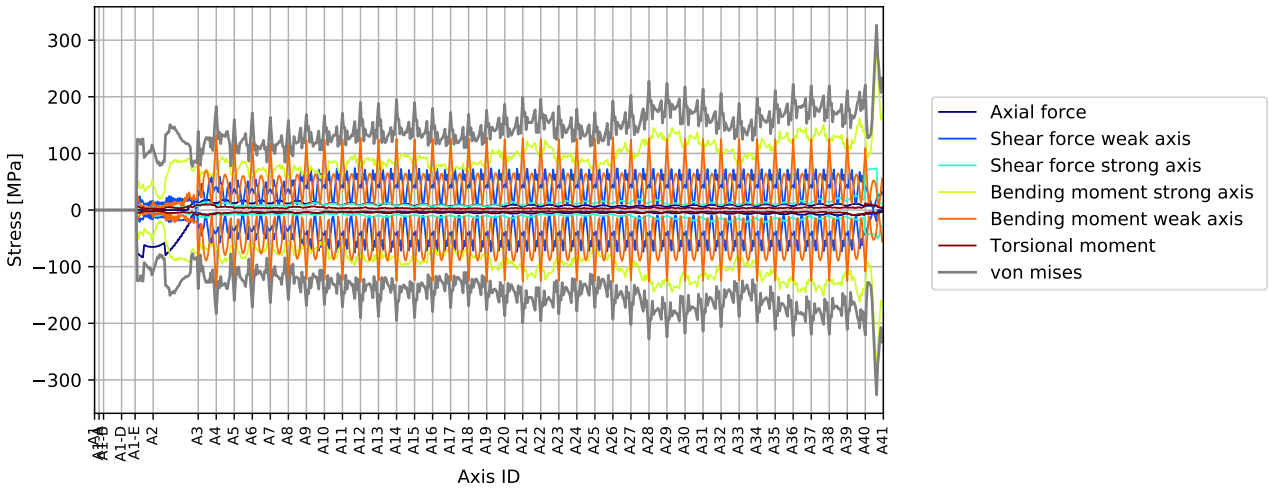

Figure 3.1615: Stress envelope from all force components

3.36.2 Envelope plots

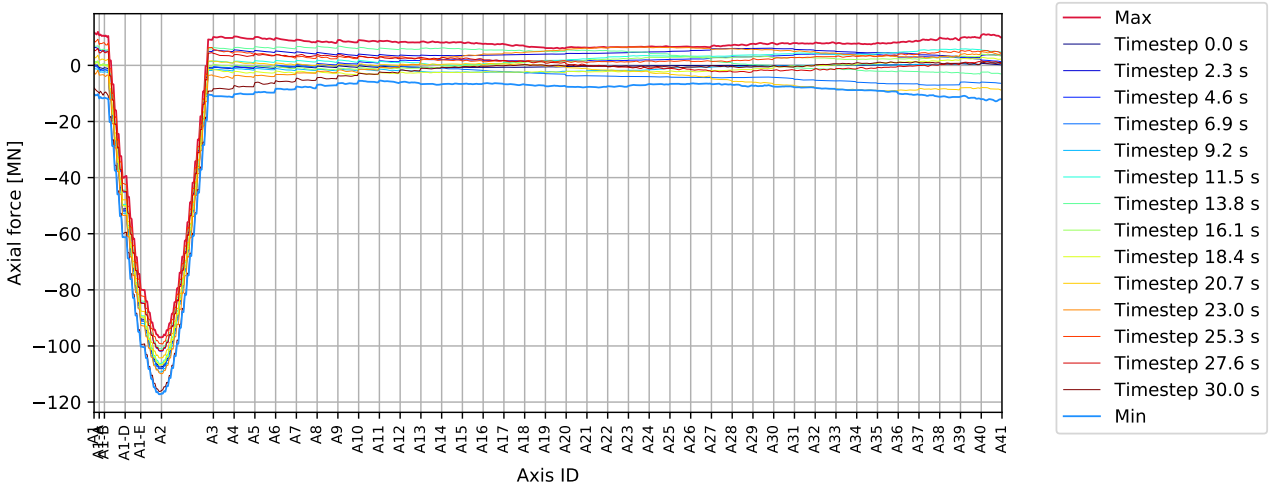

Figure 3.1616: P A40 180deg - bridgegirder : Axial force [MN]

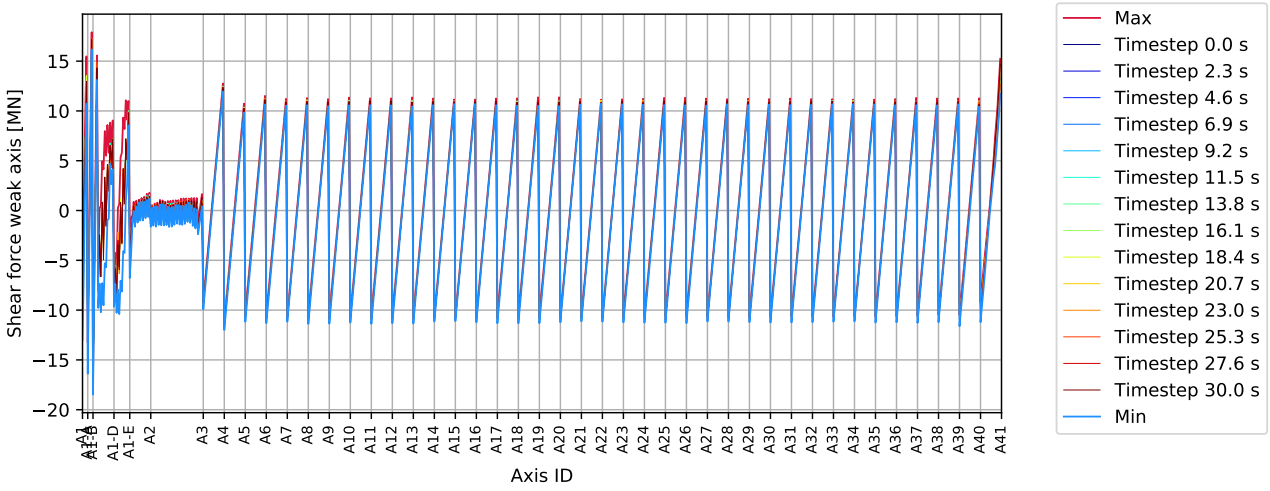

Figure 3.1617: P A40 180deg - bridgegirder : Shear force weak axis [MN]

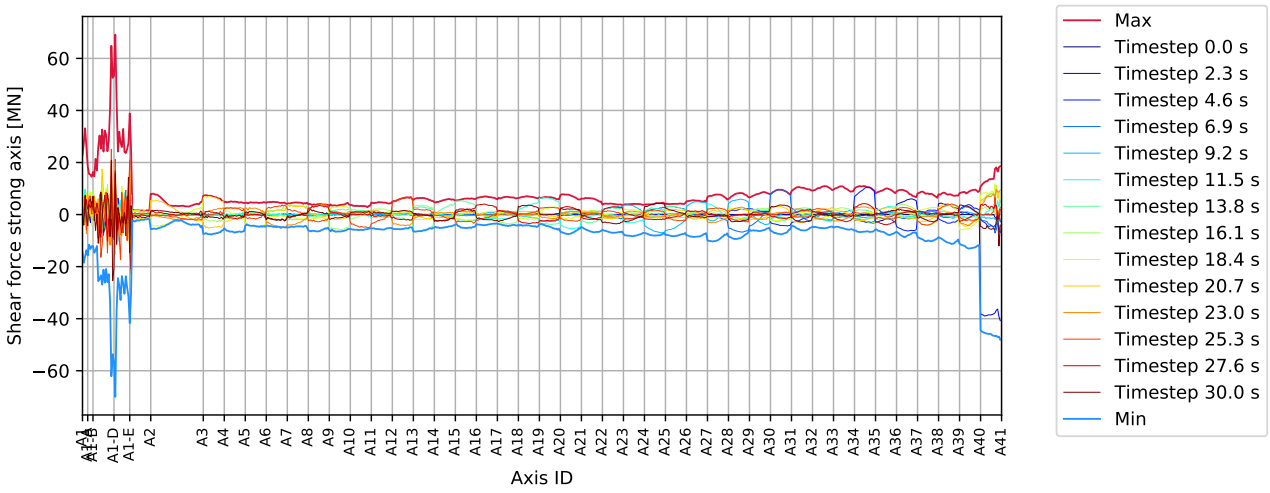

Figure 3.1618: P A40 180deg - bridgegirder : Shear force strong axis [MN]

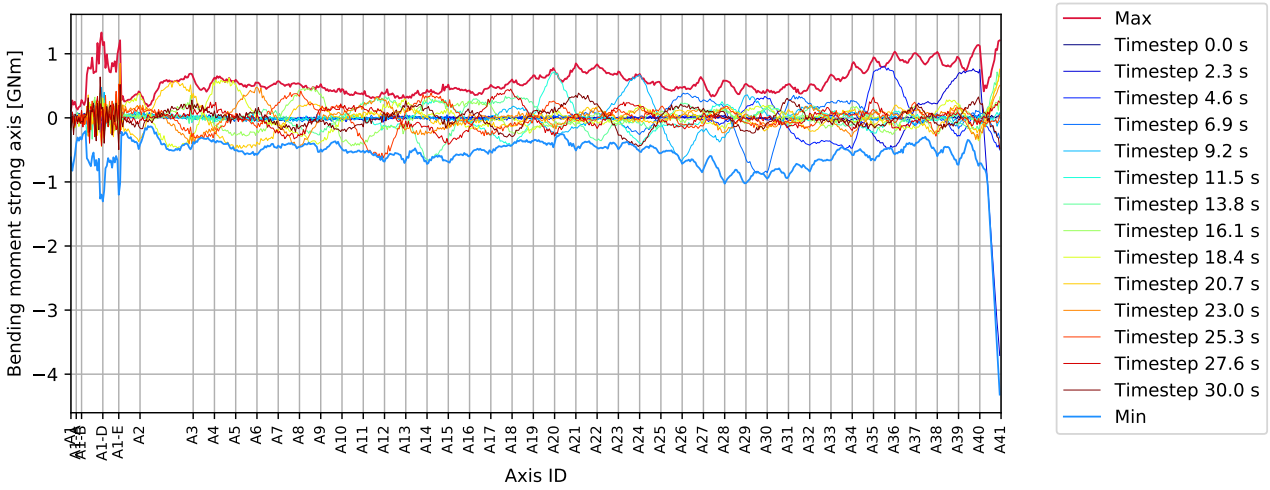

Figure 3.1619: P A40 180deg - bridgegirder : Bending moment strong axis [GNm]

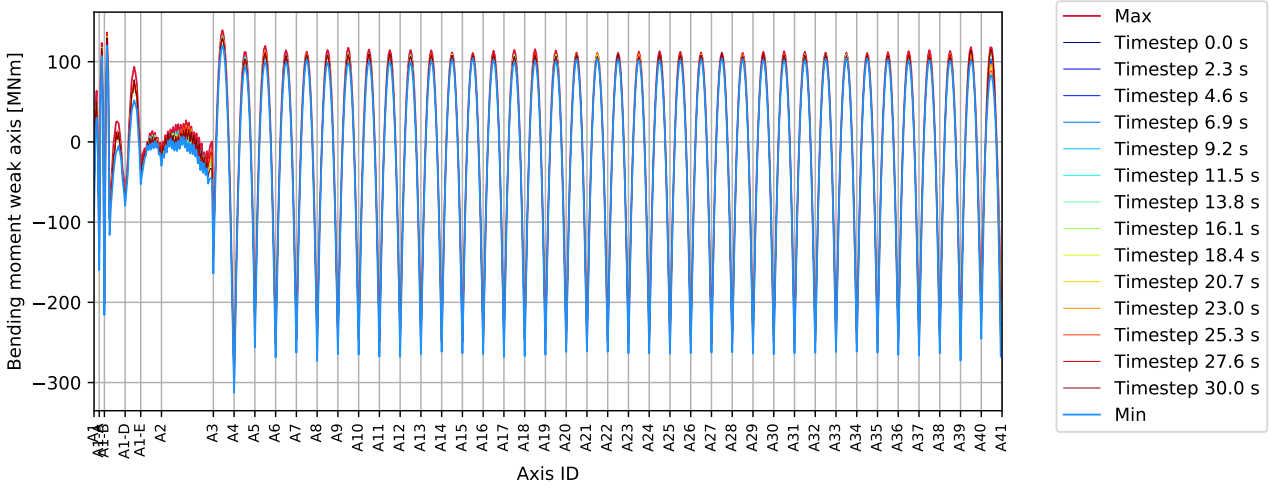

Figure 3.1620: P A40 180deg - bridgegirder : Bending moment weak axis [MNm]

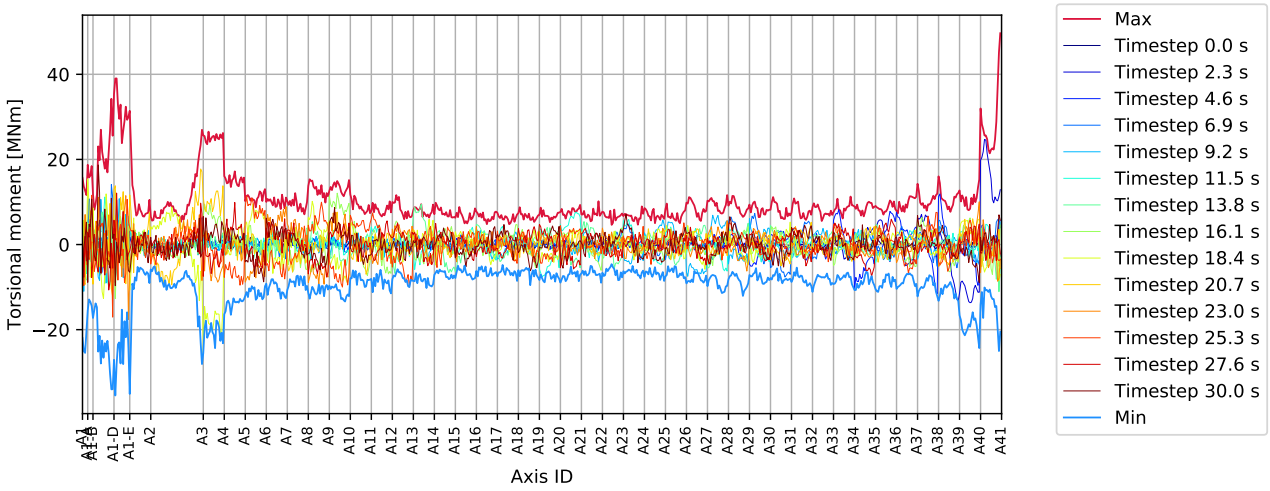

Figure 3.1621: P A40 180deg - bridgegirder : Torsional moment [MNm]

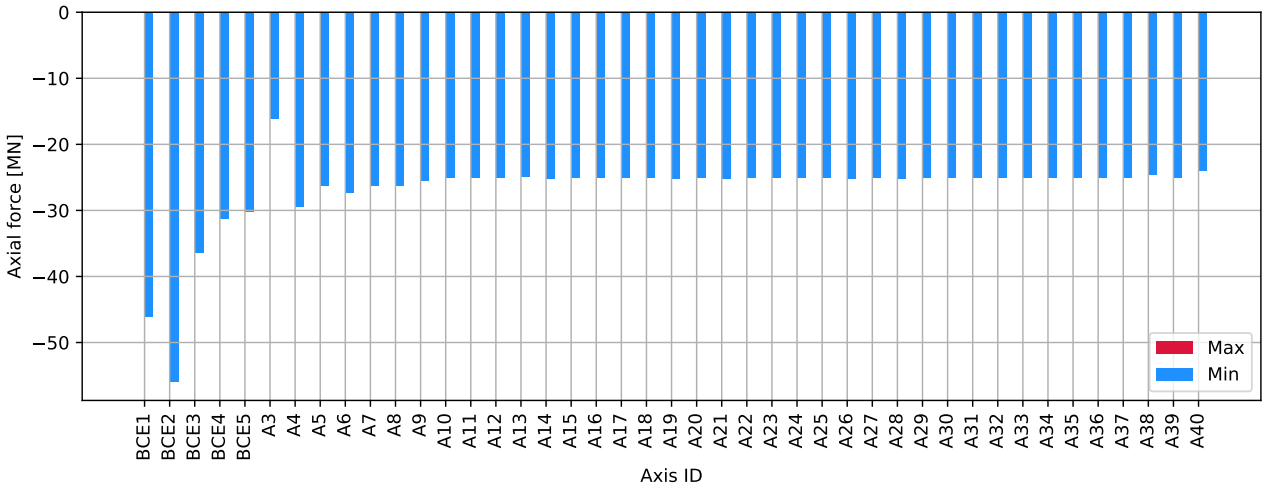

Figure 3.1622: P A40 180deg - columns bottom : Axial force [MN]

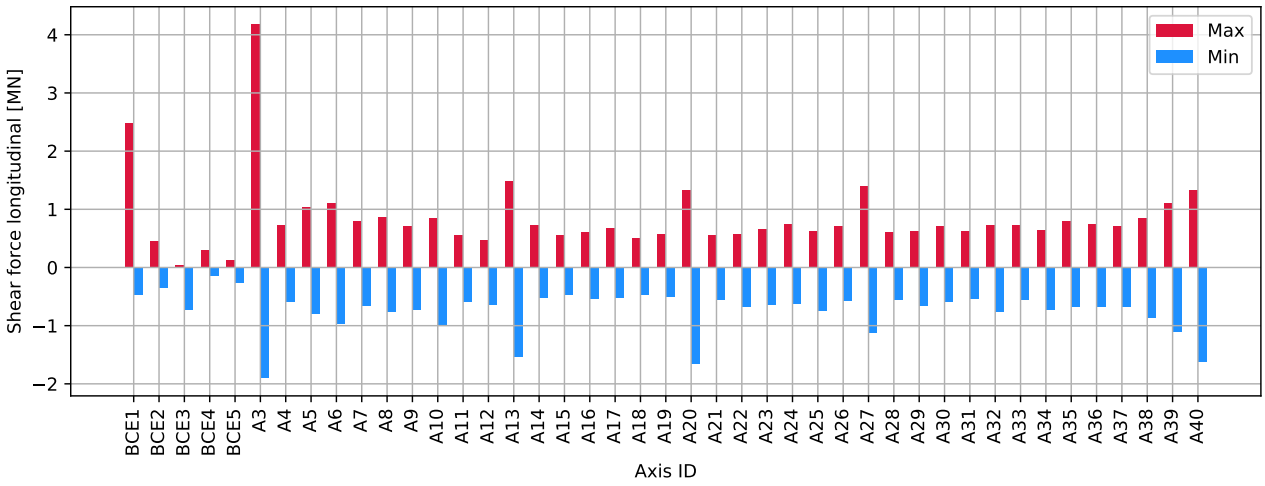

Figure 3.1623: P A40 180deg - columns bottom : Shear force longitudinal [MN]

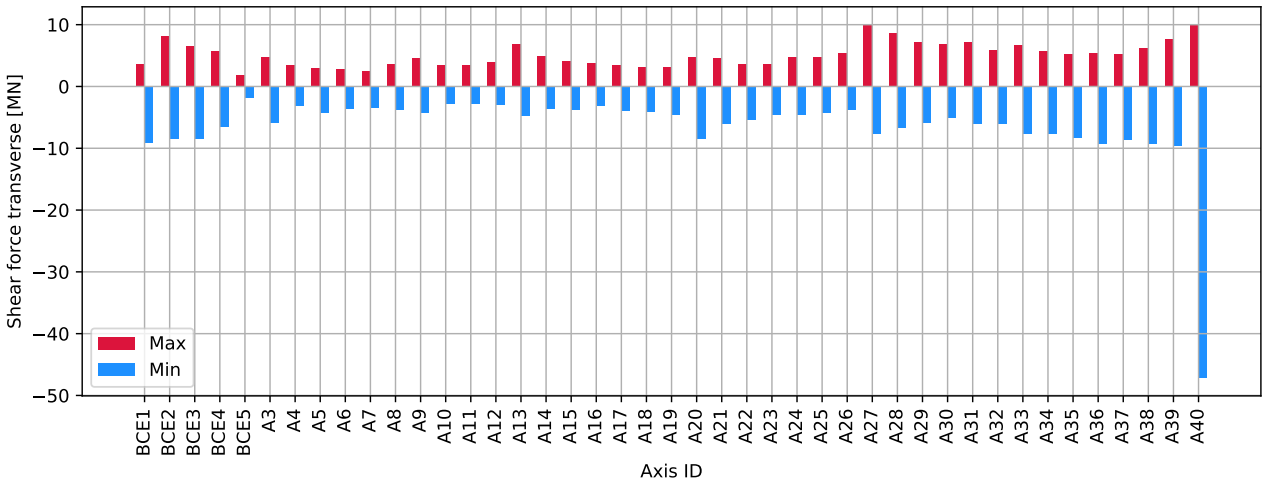

Figure 3.1624: P A40 180deg - columns bottom : Shear force transverse [MN]

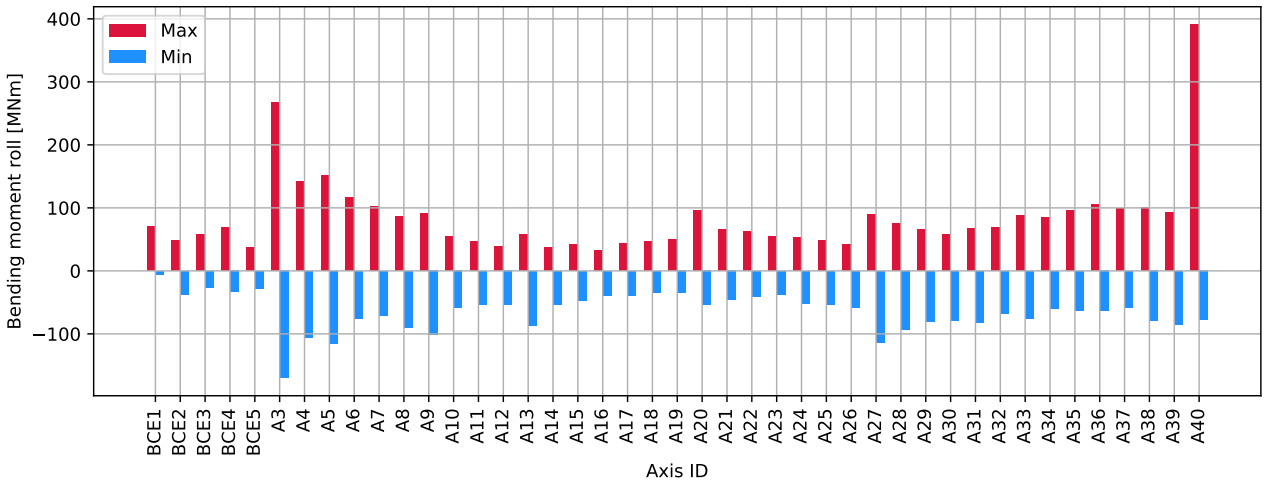

Figure 3.1625: P A40 180deg - columns bottom : Bending moment roll [MNm]

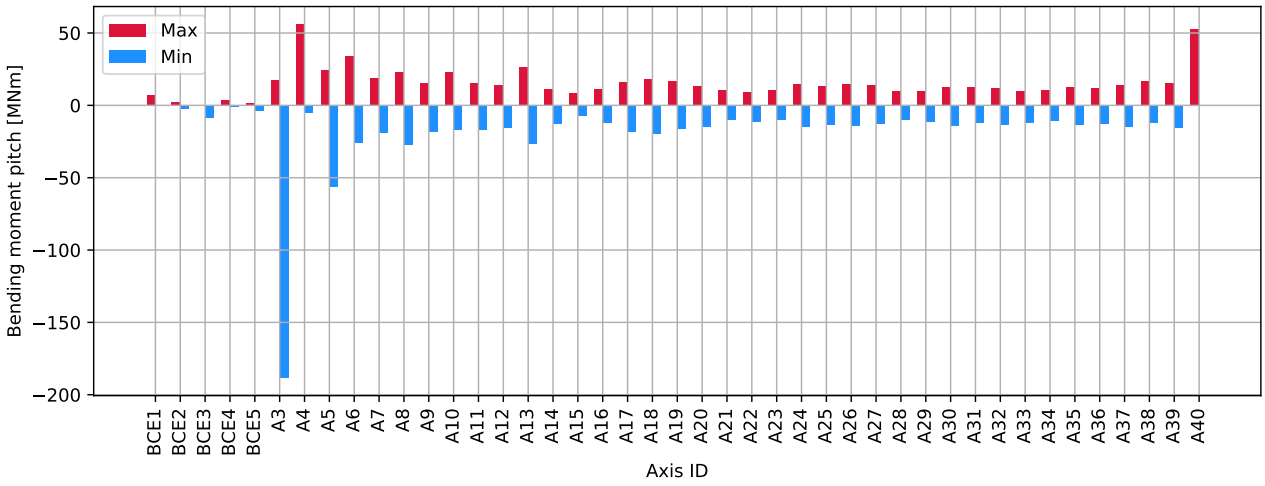

Figure 3.1626: P A40 180deg - columns bottom : Bending moment pitch [MNm]

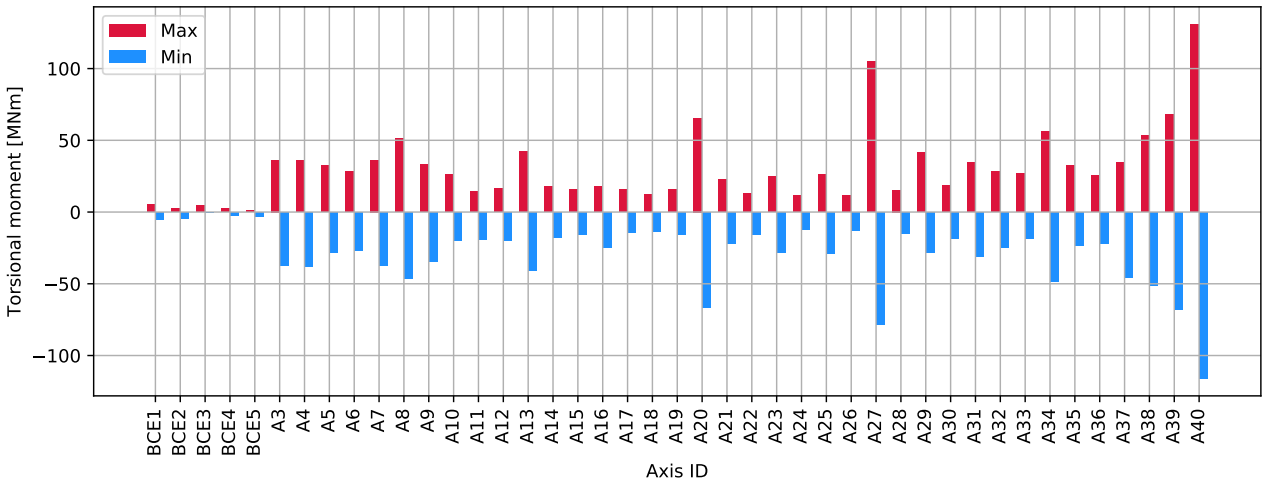

Figure 3.1627: P A40 180deg - columns bottom : Torsional moment [MNm]

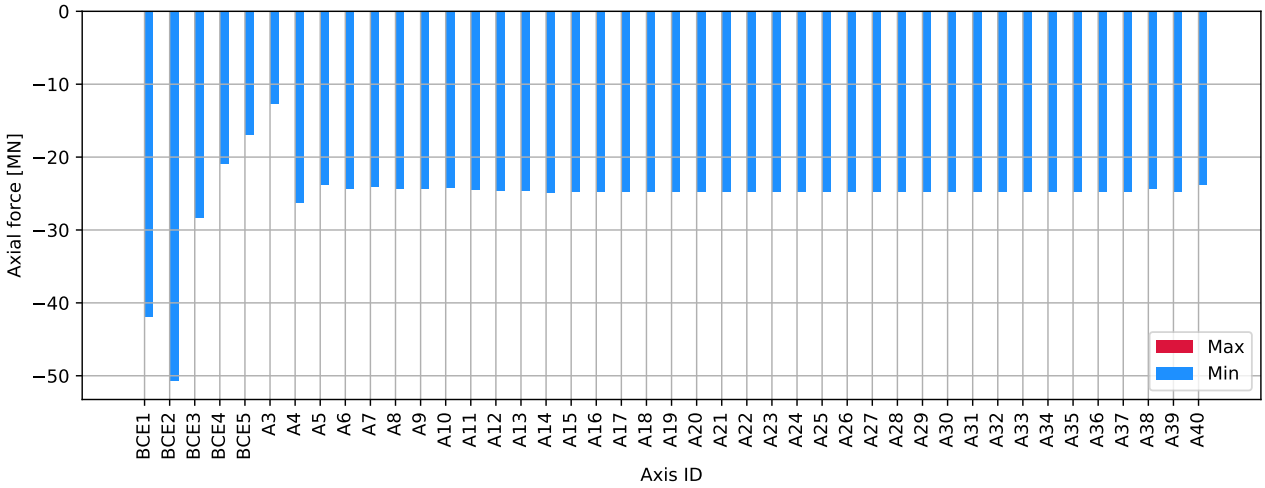

Figure 3.1628: P A40 180deg - columns top : Axial force [MN]

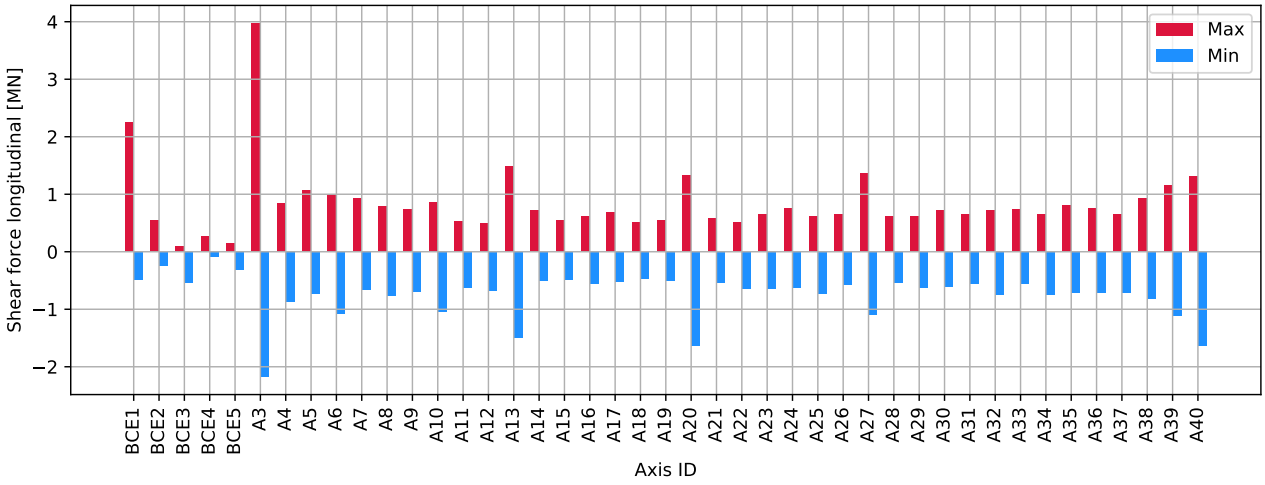

Figure 3.1629: P A40 180deg - columns top : Shear force longitudinal [MN]

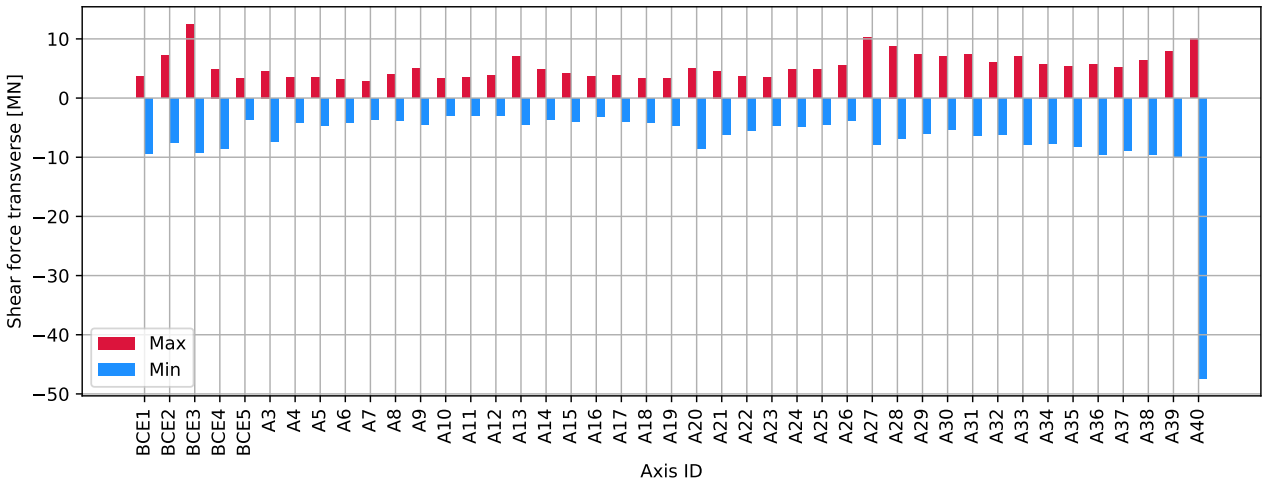

Figure 3.1630: P A40 180deg - columns top : Shear force transverse [MN]

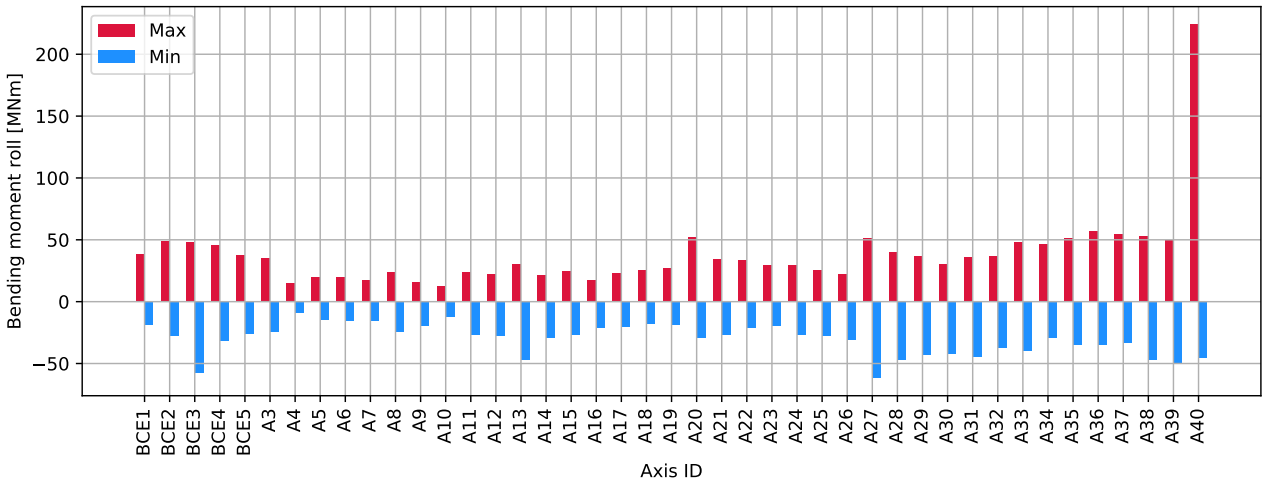

Figure 3.1631: P A40 180deg - columns top : Bending moment roll [MNm]

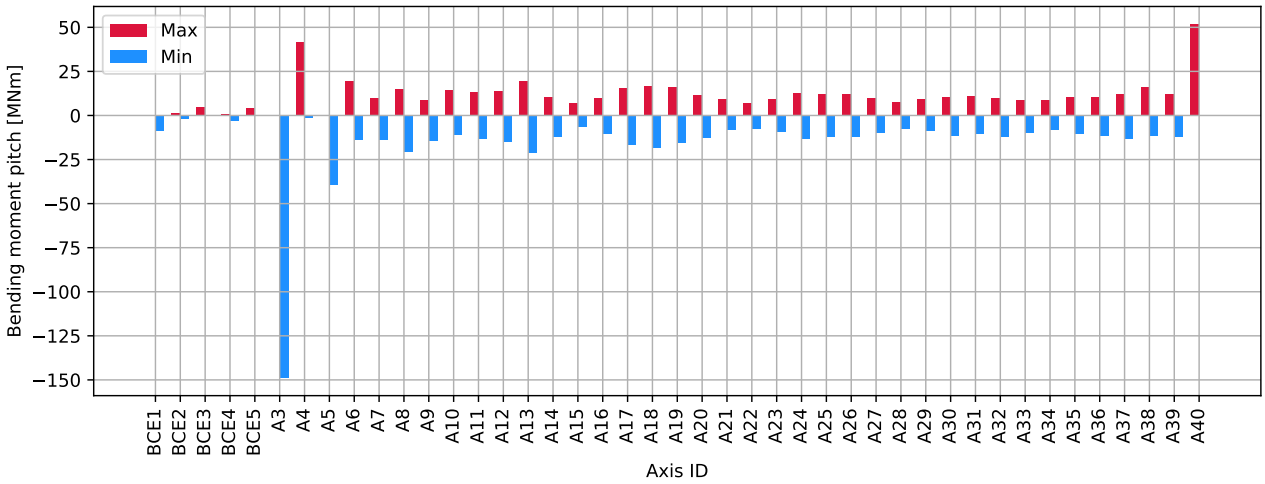

Figure 3.1632: P A40 180deg - columns top : Bending moment pitch [MNm]

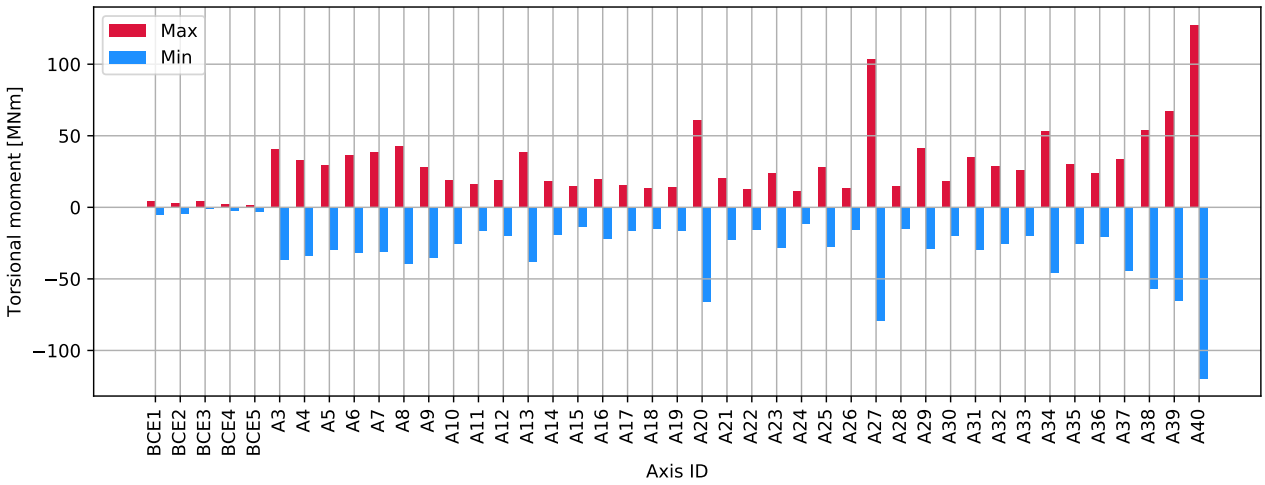

Figure 3.1633: P A40 180deg - columns top : Torsional moment [MNm]

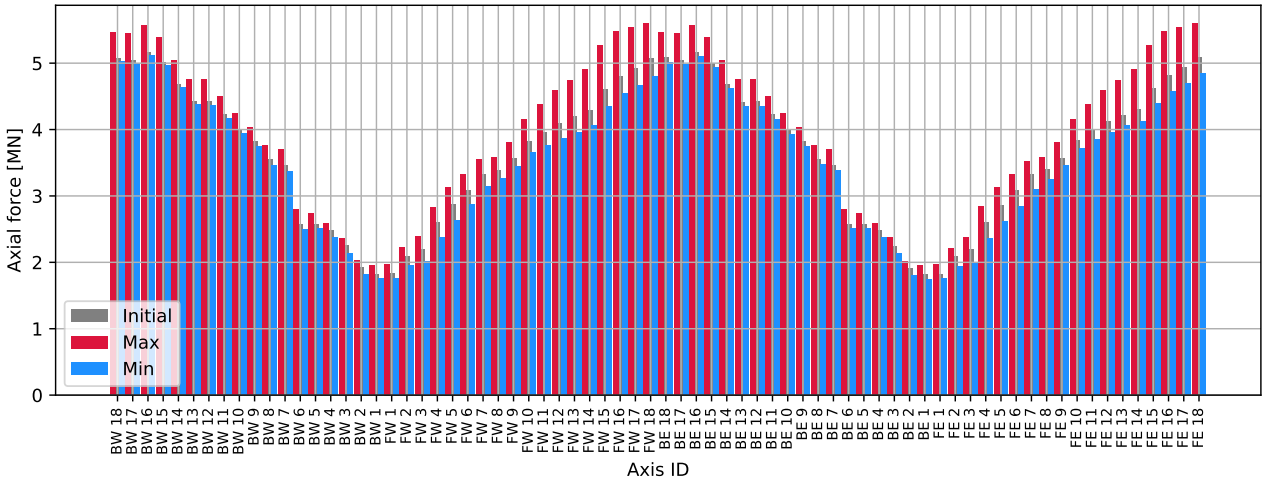

Figure 3.1634: P A40 180deg - cables : Axial force [MN]

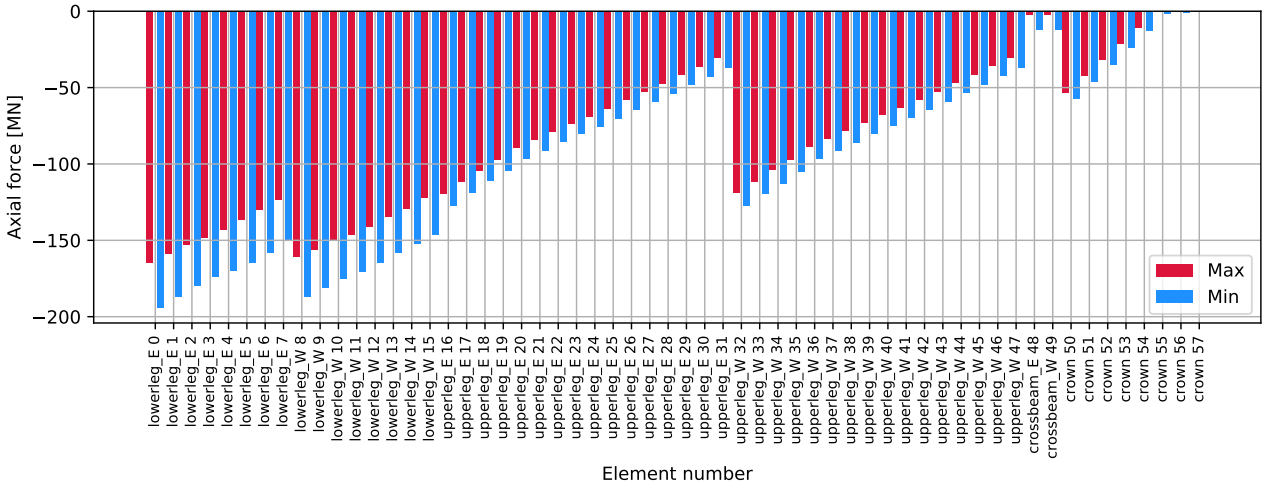

Figure 3.1635: P A40 180deg - tower: Axial force [MN]

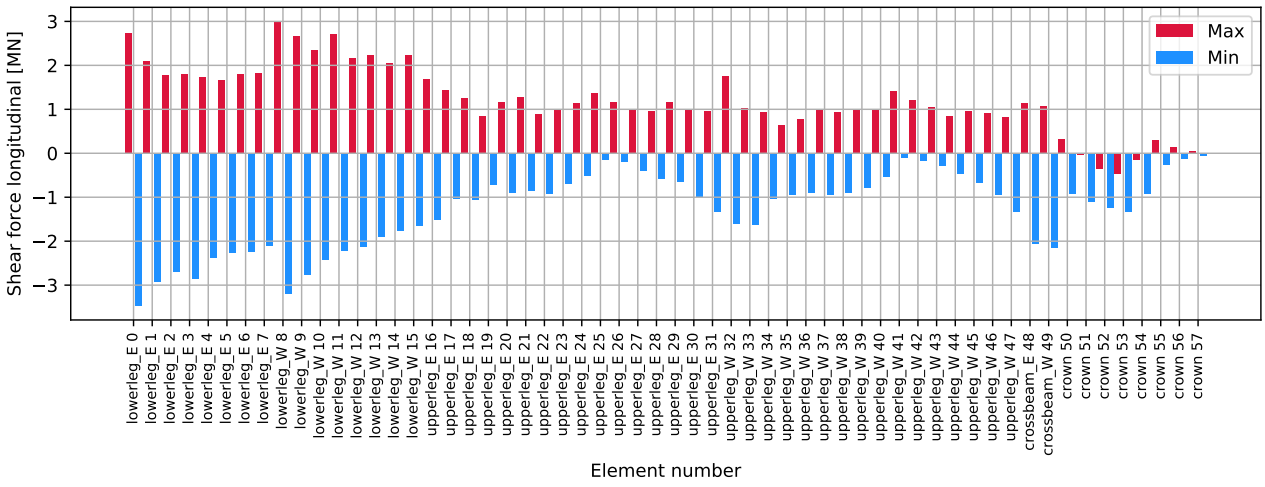

Figure 3.1636: P A40 180deg - tower: Shear force longitudinal [MN]

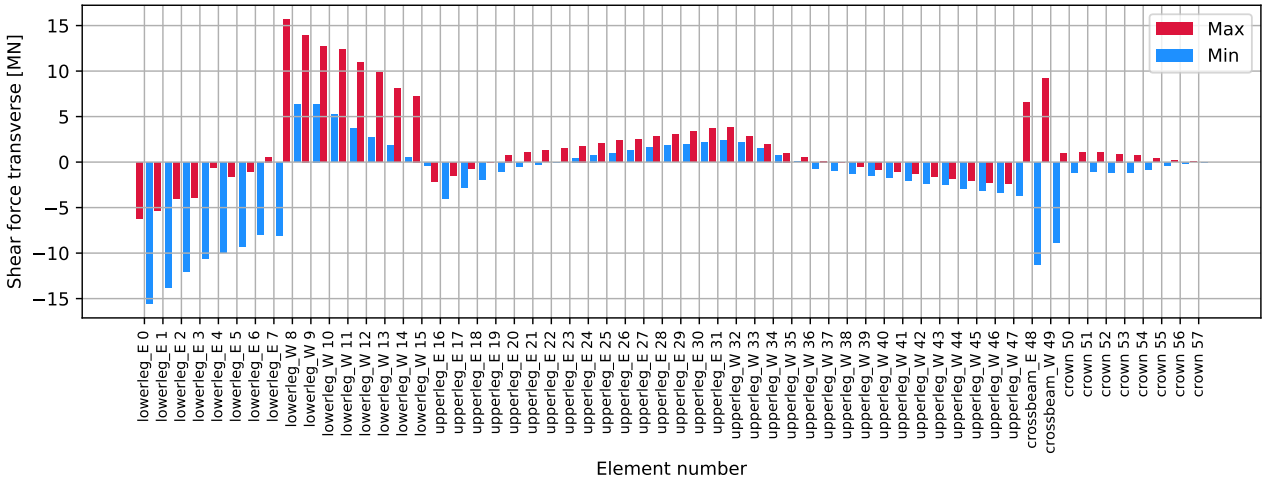

Figure 3.1637: P A40 180deg - tower: Shear force transverse [MN]

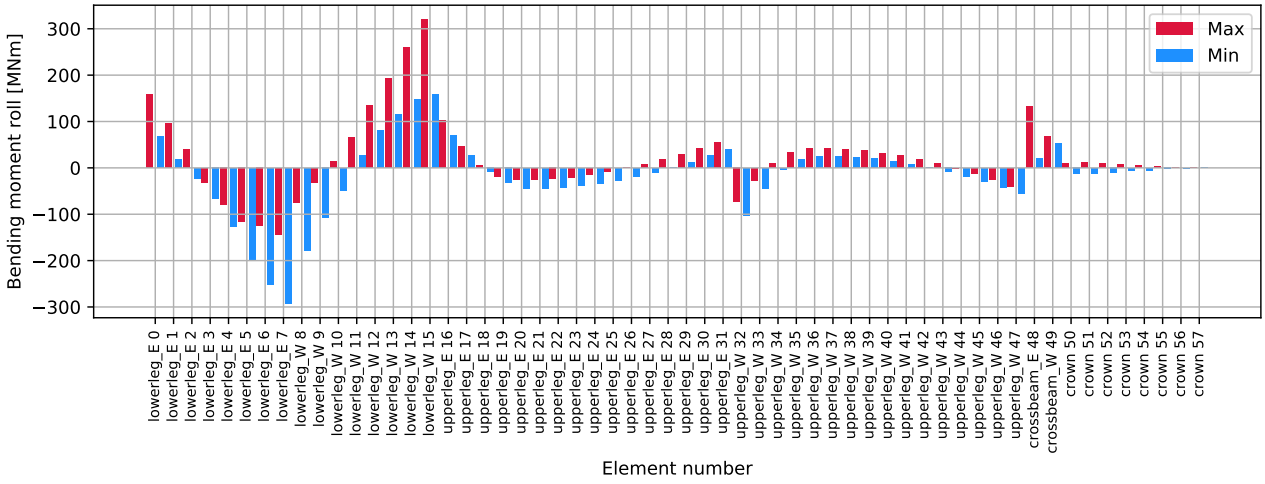

Figure 3.1638: P A40 180deg - tower: Bending moment roll [MNm]

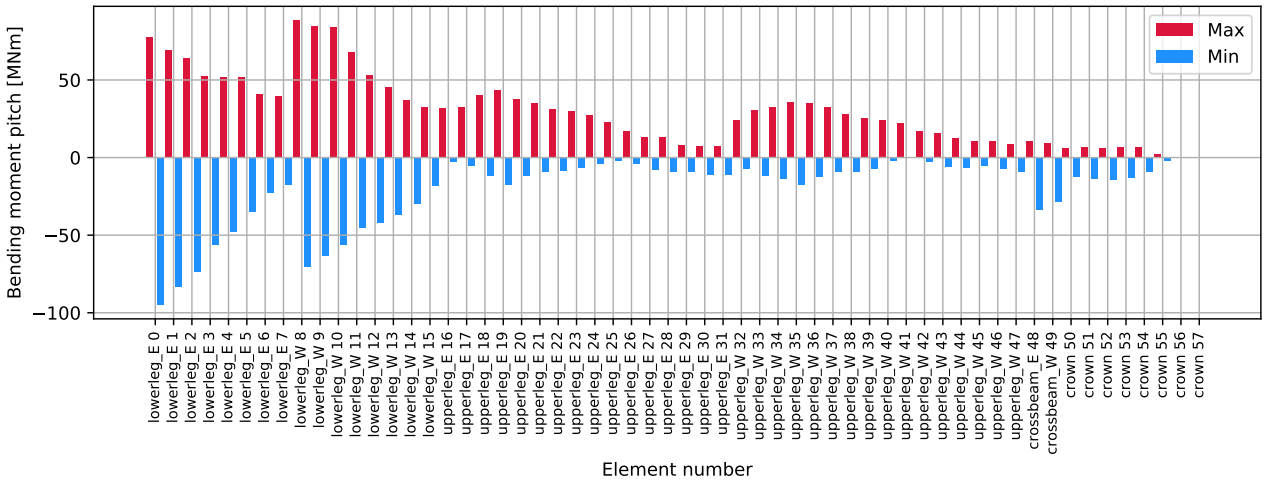

Figure 3.1639: P A40 180deg - tower: Bending moment pitch [MNm]

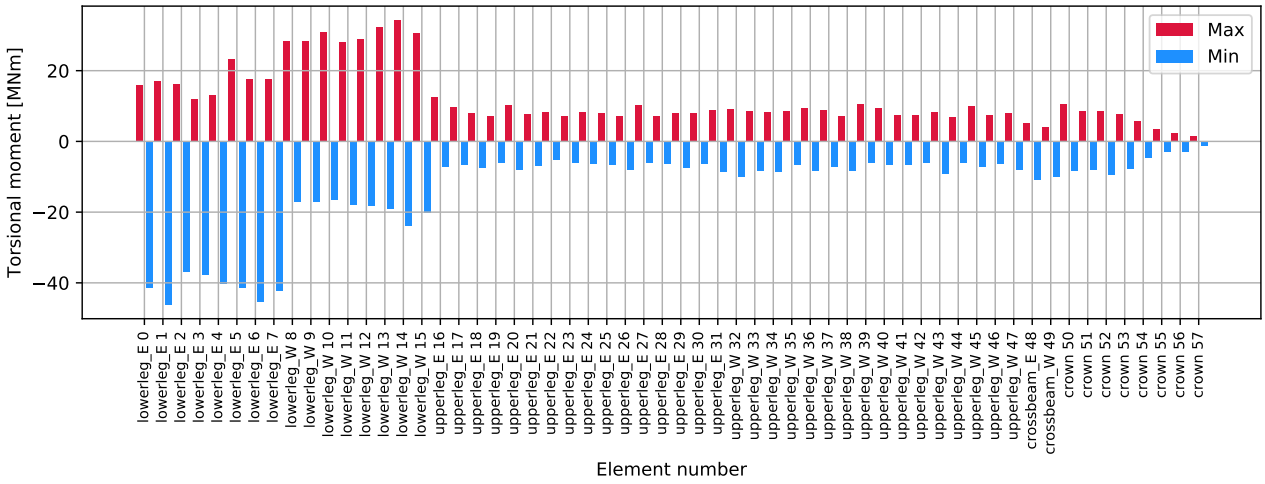

Figure 3.1640: P A40 180deg - tower: Torsional moment [MNm]

3.36.3 Time series

Note : Time series are filtered using a Saviotzky-Golay filter for increased readability of the time history plots. Hence, maximum values that occur due to a rapid vibration are not shown in the plots. For maximum values, refer to the tabulated data.
All elements are numbered from South to North, bottom to top

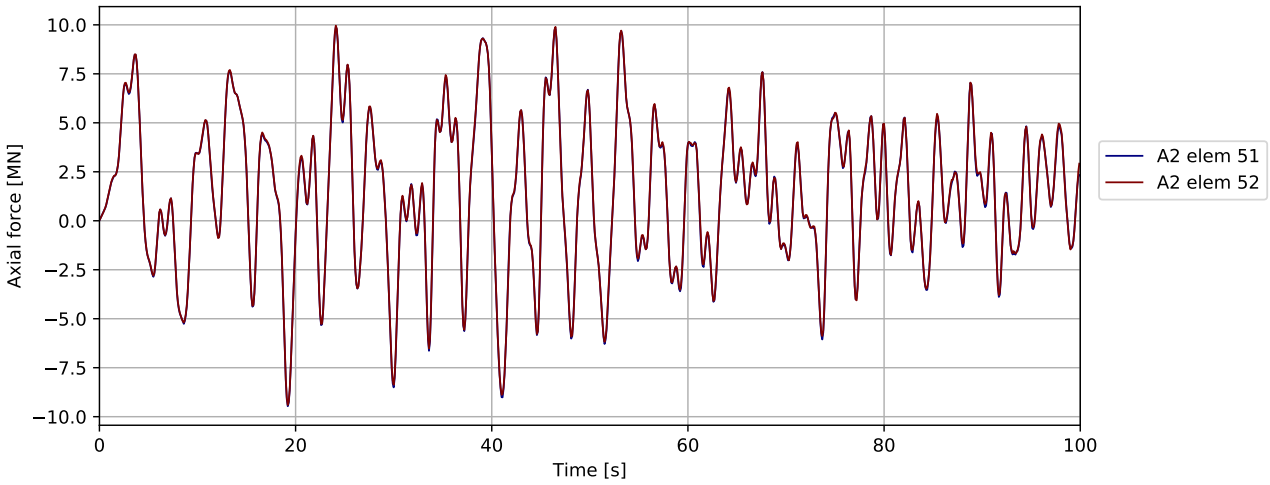

Figure 3.1641: P A40 180deg - bridgegirder @ pylon: Axial force [MN]

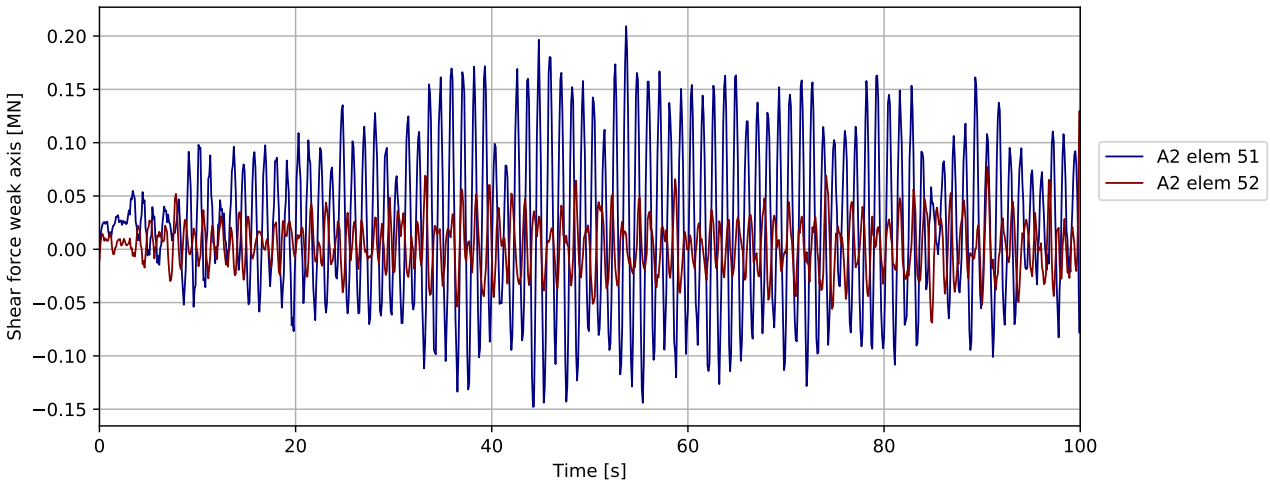

Figure 3.1642: P A40 180deg - bridgegirder @ pylon: Shear force weak axis [MN]

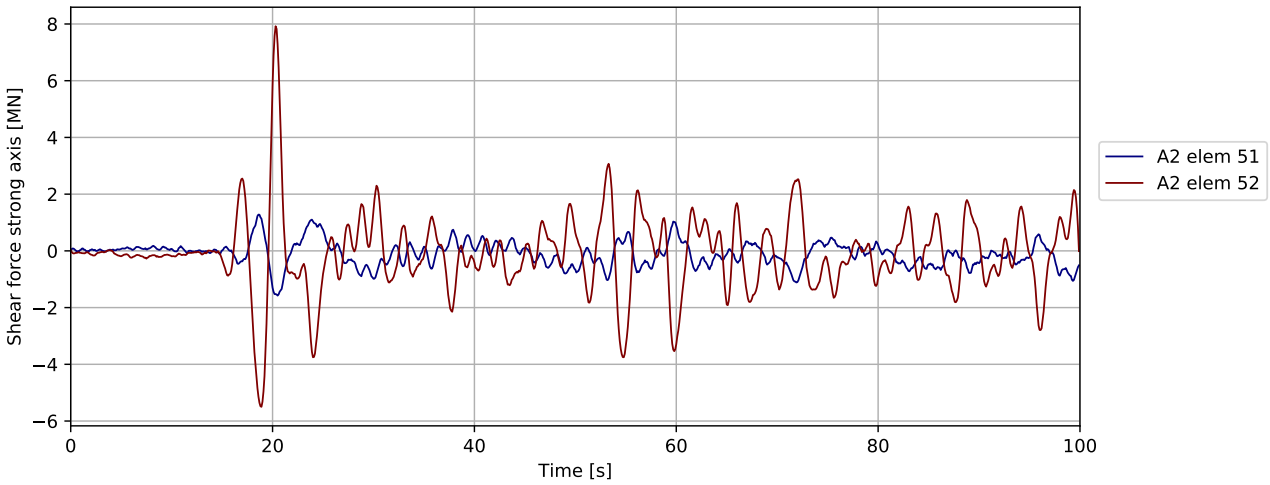

Figure 3.1643: P A40 180deg - bridgegirder @ pylon: Shear force strong axis [MN]

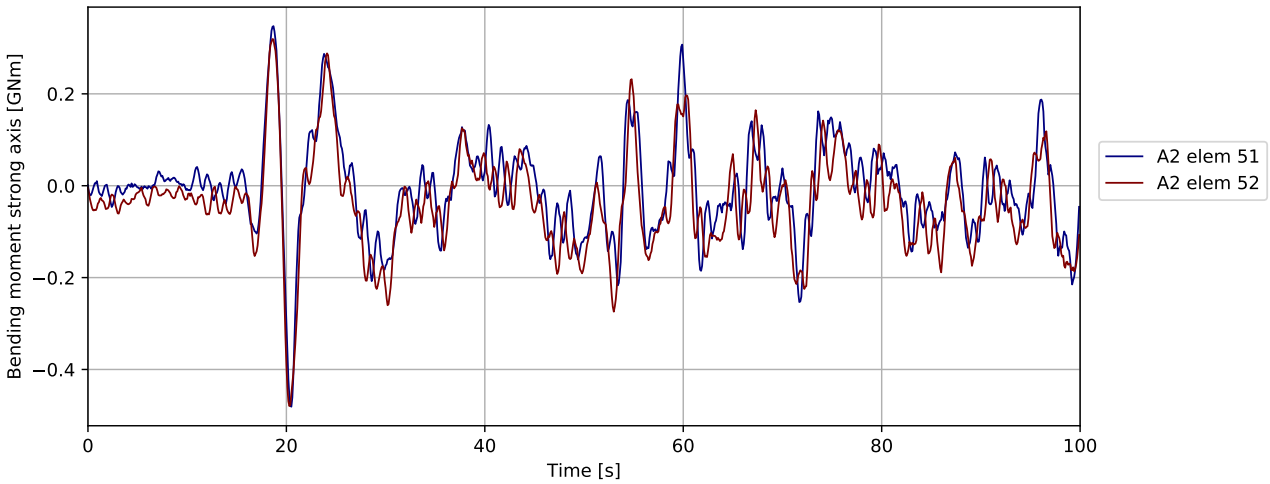

Figure 3.1644: P A40 180deg - bridgegirder @ pylon: Bending moment strong axis [GNm]

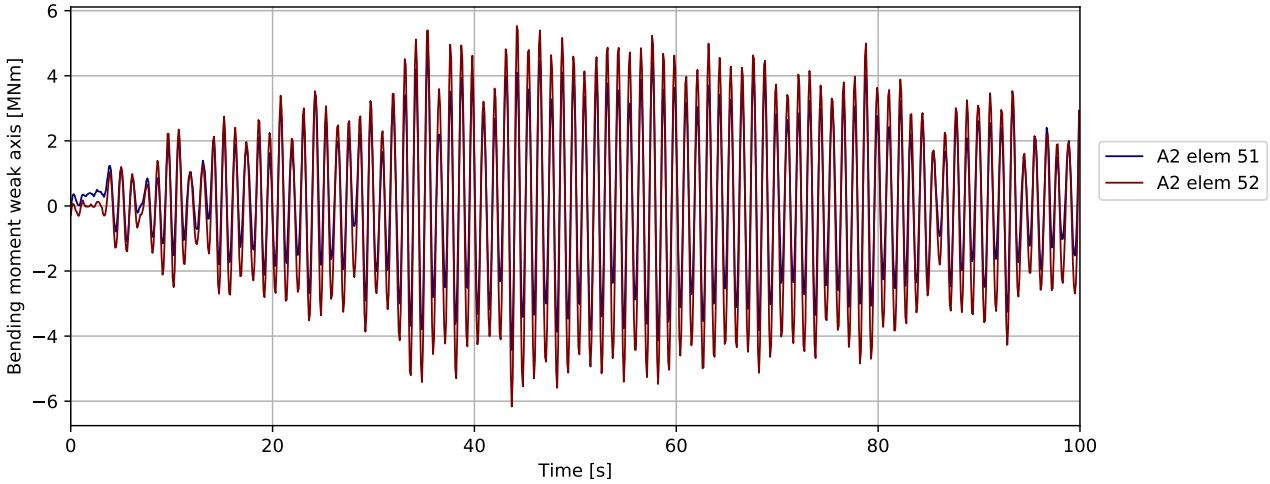

Figure 3.1645: P A40 180deg - bridgegirder @ pylon: Bending moment weak axis [MNm]

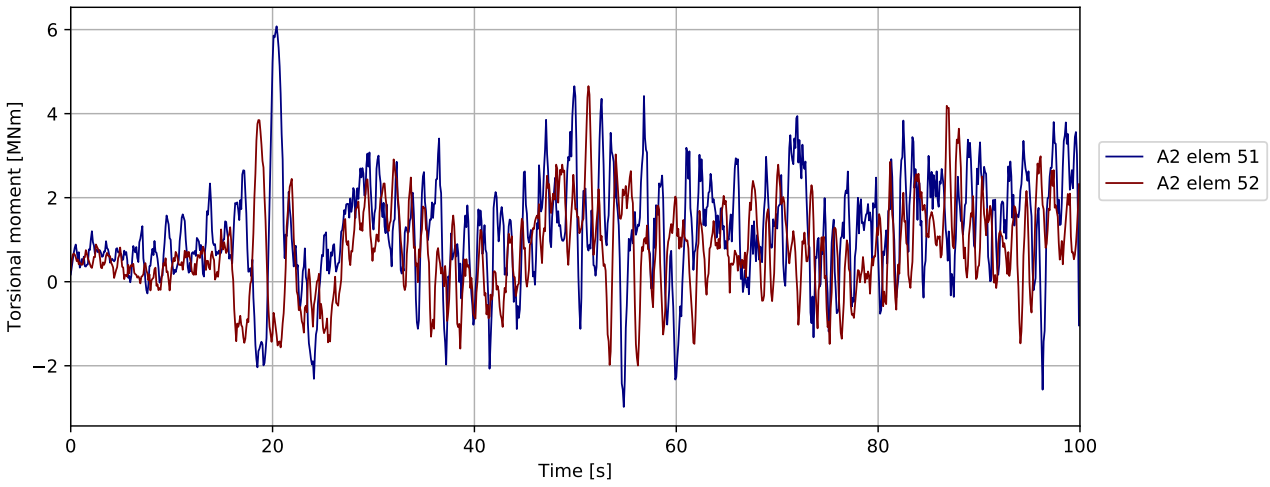

Figure 3.1646: P A40 180deg - bridgegirder @ pylon: Torsional moment [MNm]

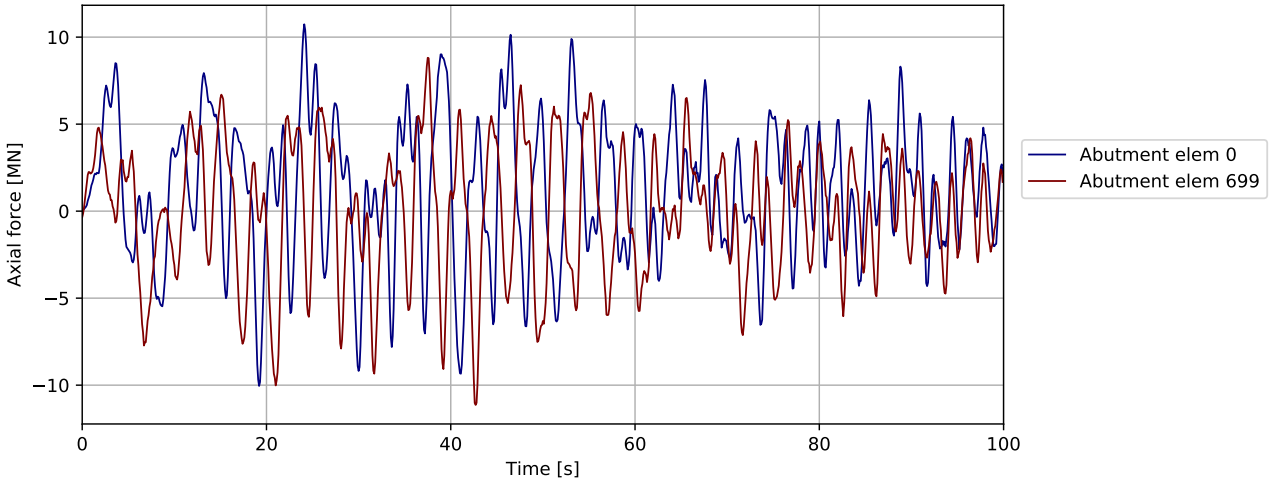

Figure 3.1647: P A40 180deg - bridgegirder @abutments: Axial force [MN]

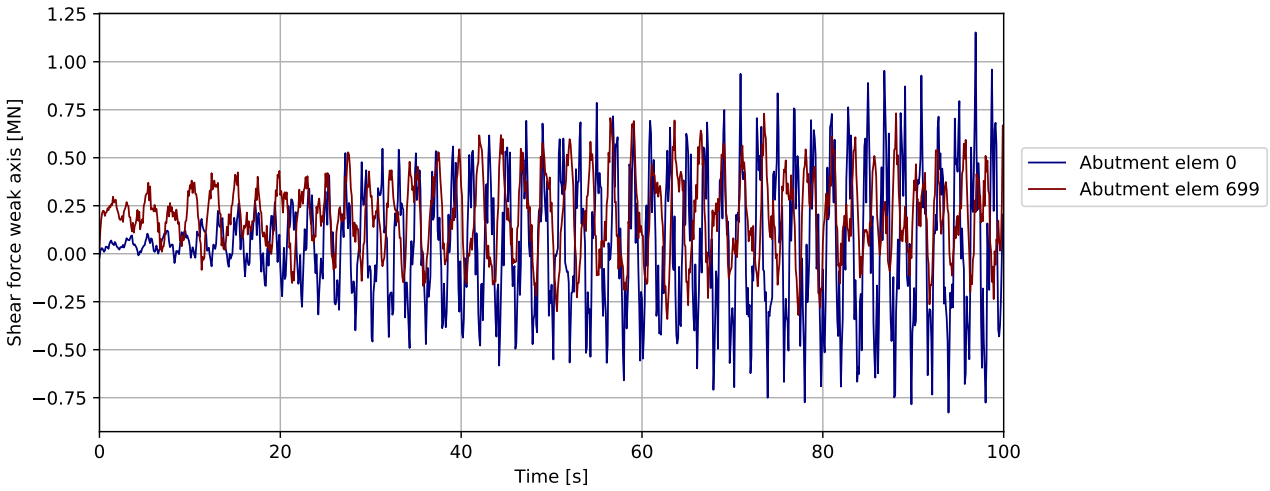

Figure 3.1648: P A40 180deg - bridgegirder @abutments: Shear force weak axis [MN]

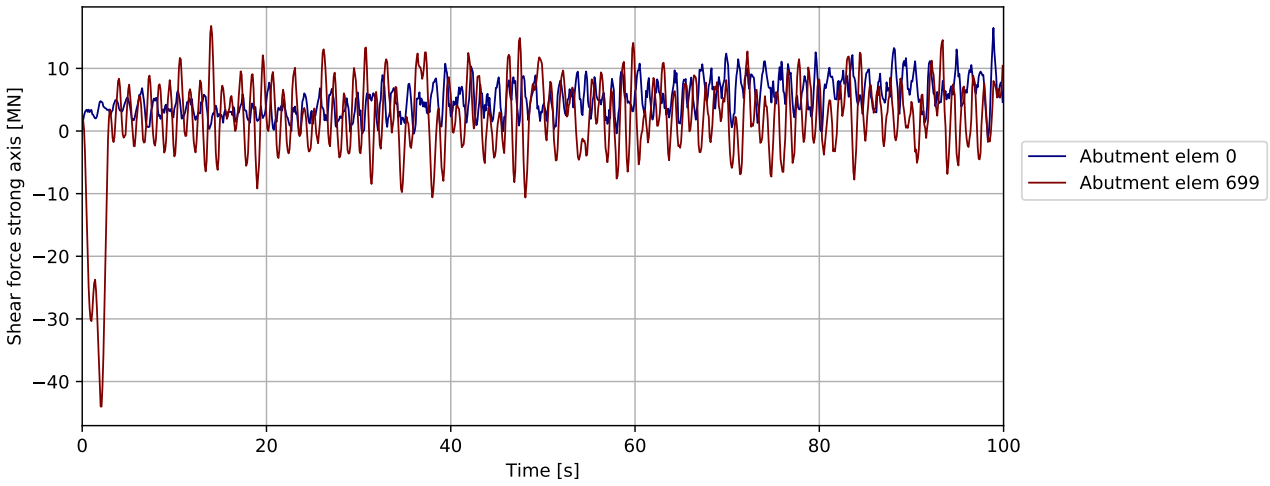

Figure 3.1649: P A40 180deg - bridgegirder @abutments: Shear force strong axis [MN]

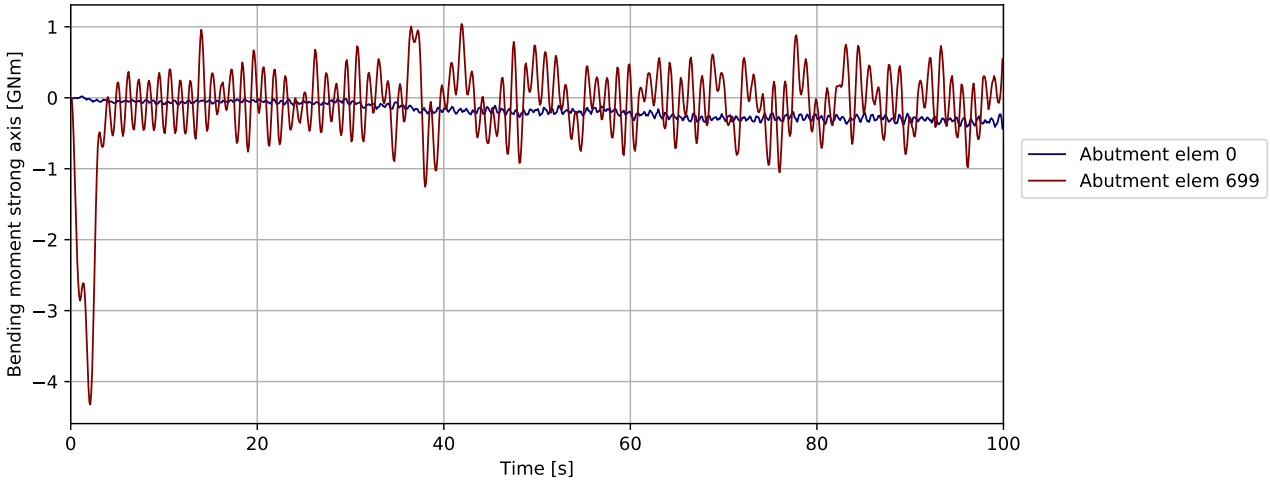

Figure 3.1650: P A40 180deg - bridgegirder @abutments: Bending moment strong axis [GNm]

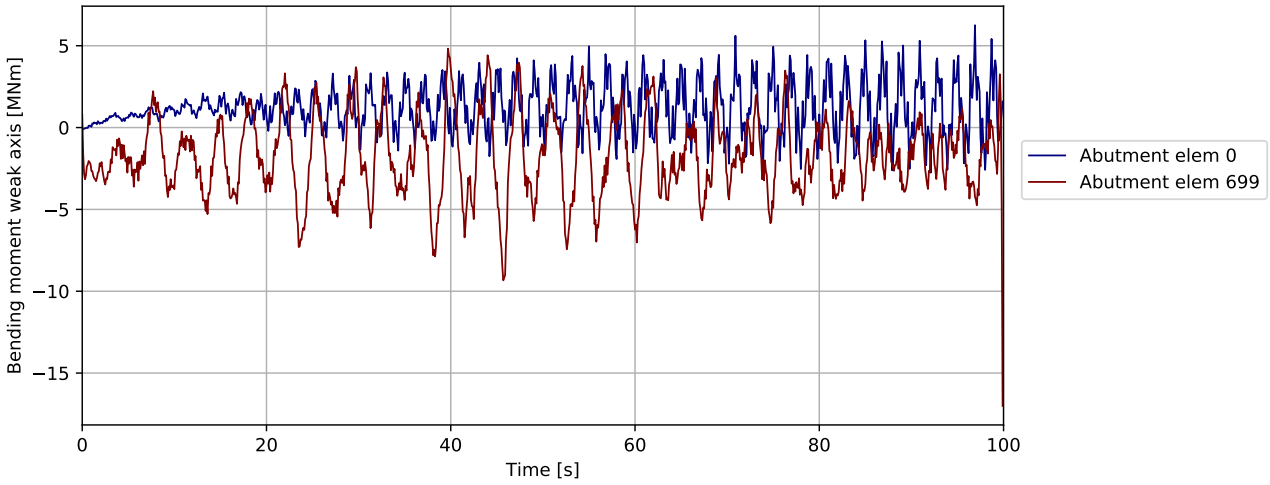

Figure 3.1651: P A40 180deg - bridgegirder @abutments: Bending moment weak axis [MNm]

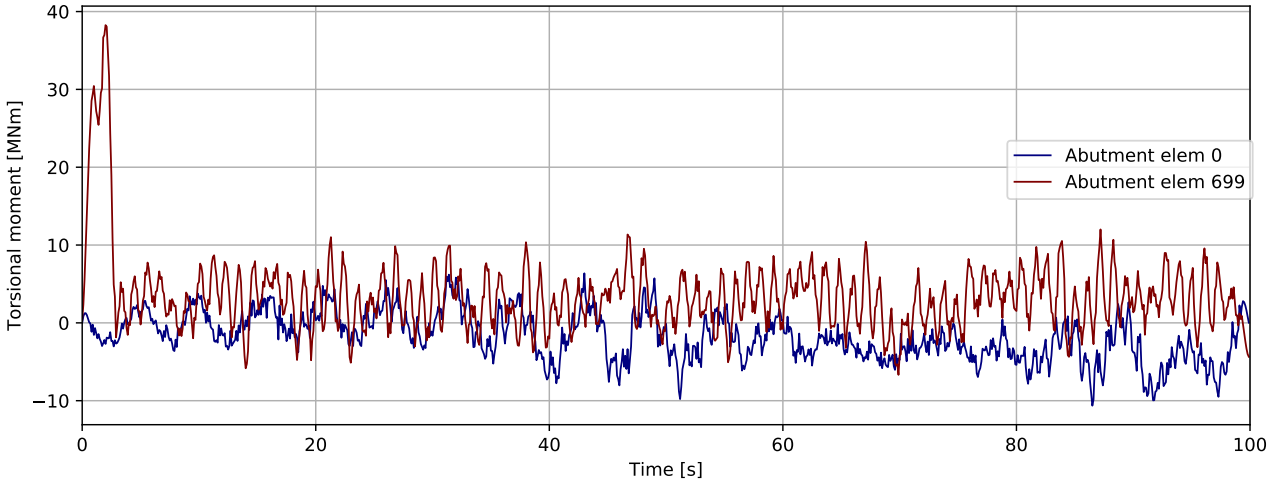

Figure 3.1652: P A40 180deg - bridgegirder @abutments: Torsional moment [MNm]

Note : Compressive spring force is negative

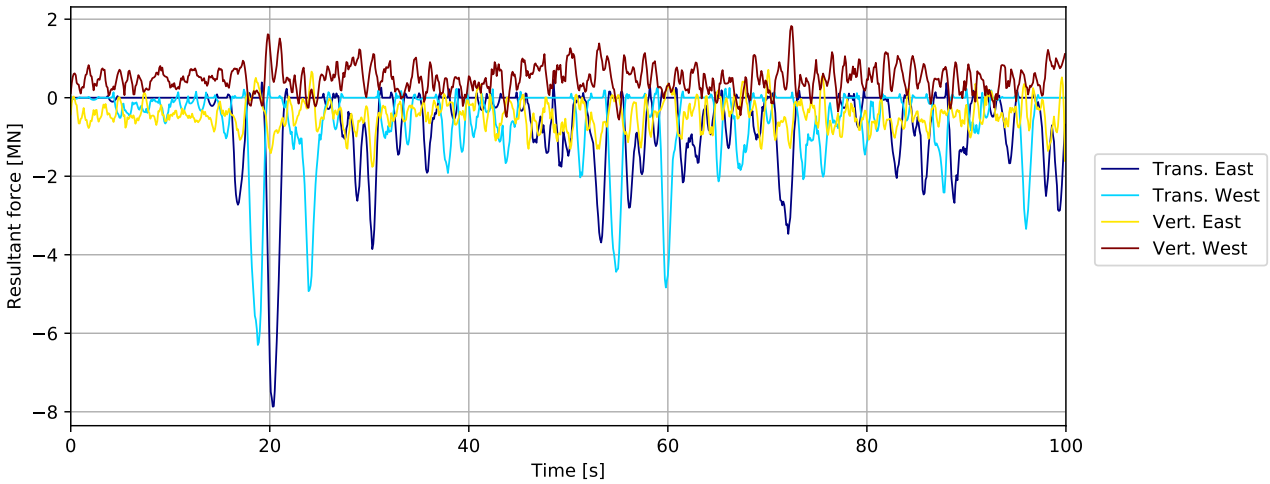

Figure 3.1653: P A40 180deg - bridgegirder supports in tower: Resultant force [MN]

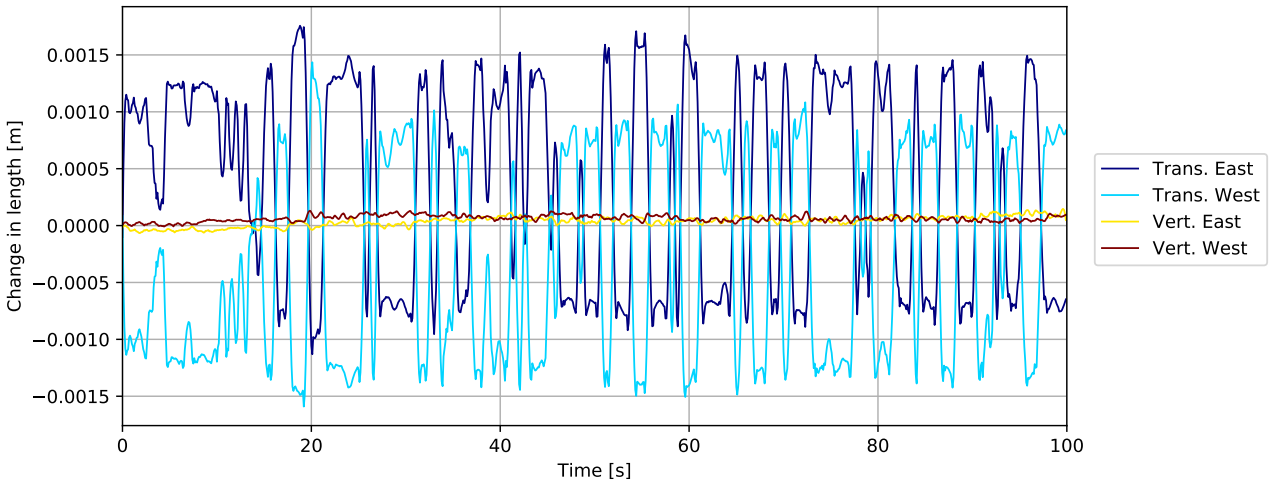

Figure 3.1654: P A40 180deg - bridgegirder supports in tower: Change in length [m]

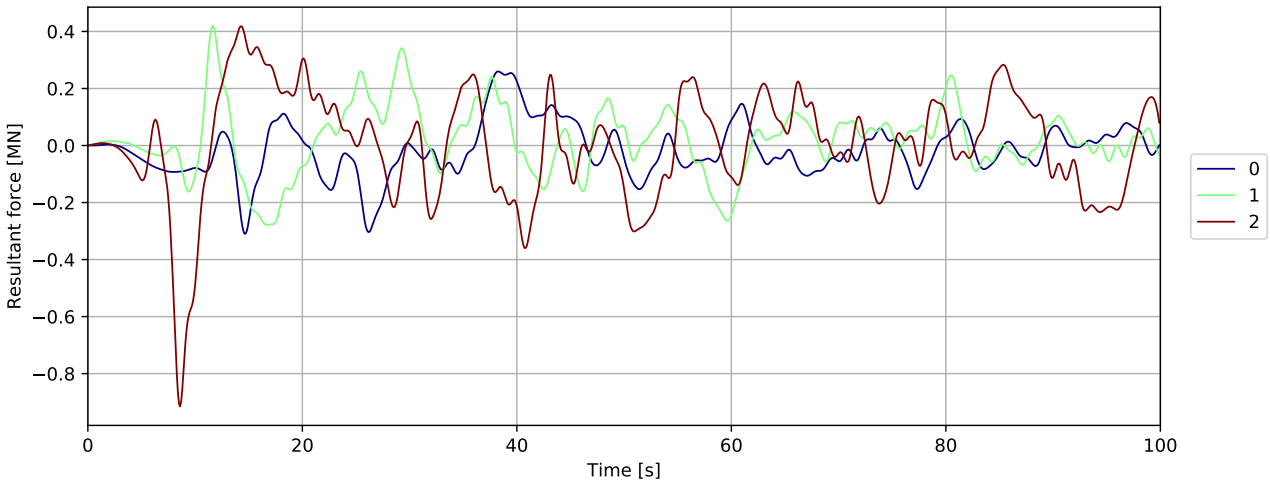

Figure 3.1655: Mooring force

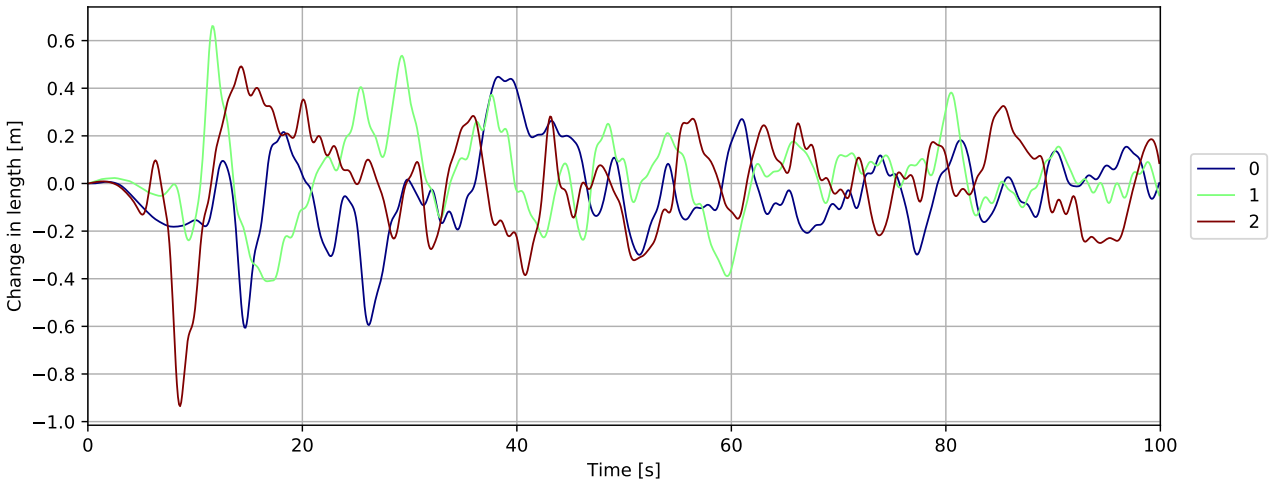

Figure 3.1656: Mooring displacement

4 Detailed results : Ship deck house - bridge girder collision

4.1 Deck house A7-A8 0deg

4.1.1 Overall response

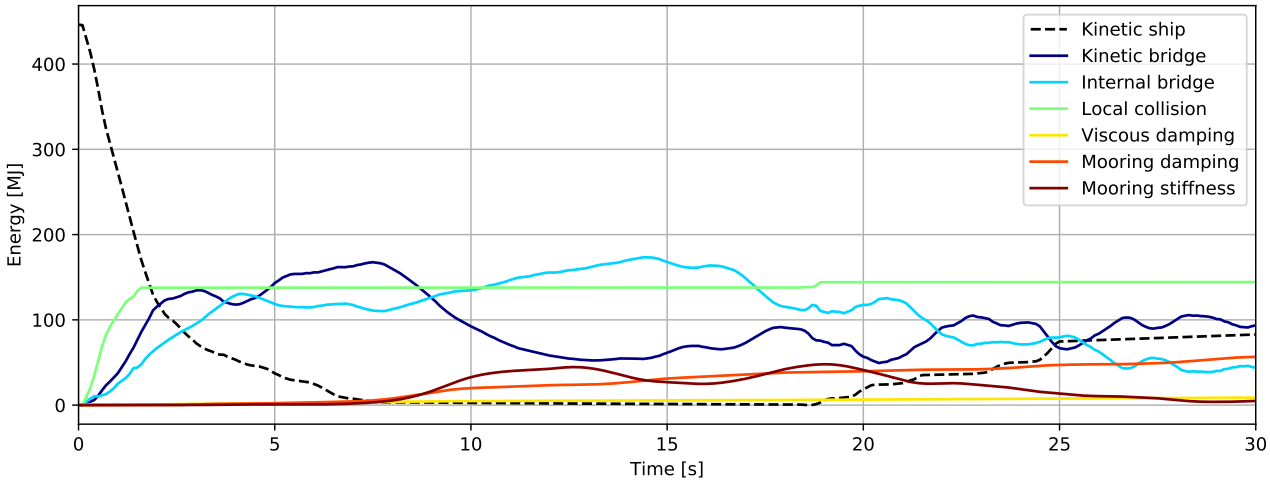

Figure 4.1: Energy [MJ] - initial phase

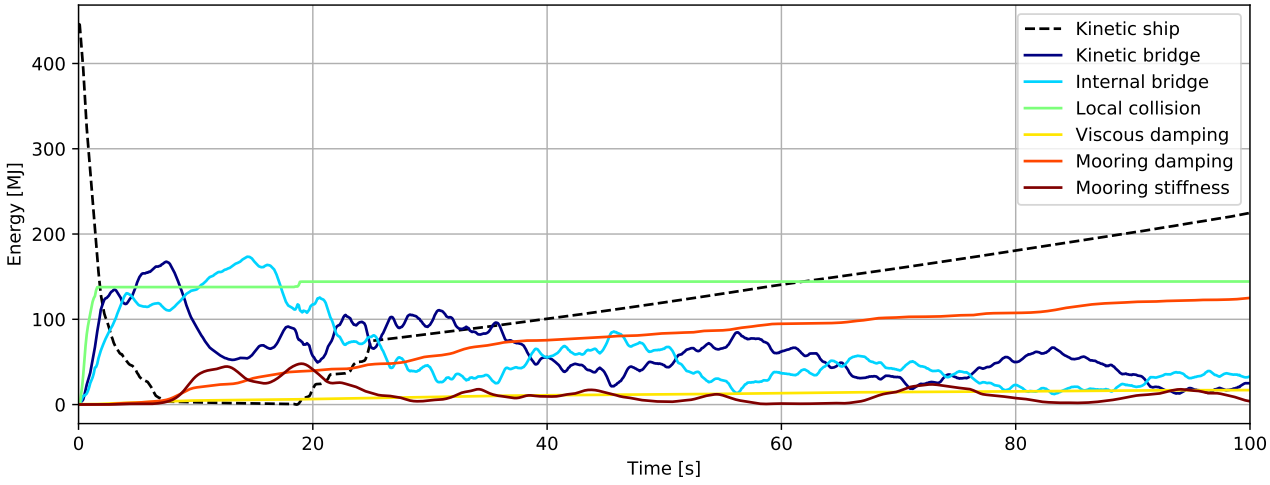

Figure 4.2: Energy [MJ]

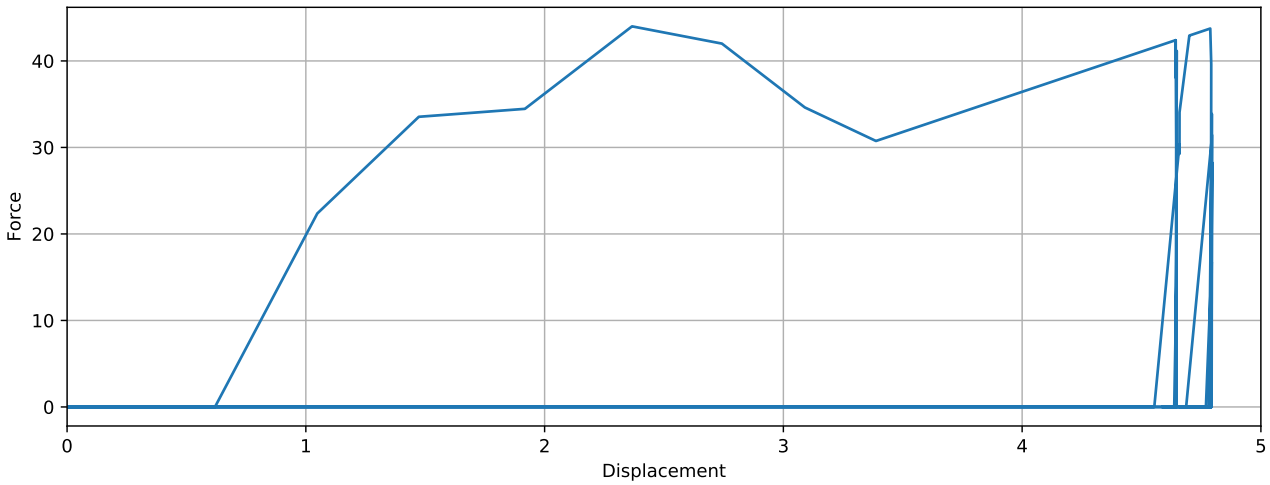

Figure 4.3: Simulated local collision force-displacement

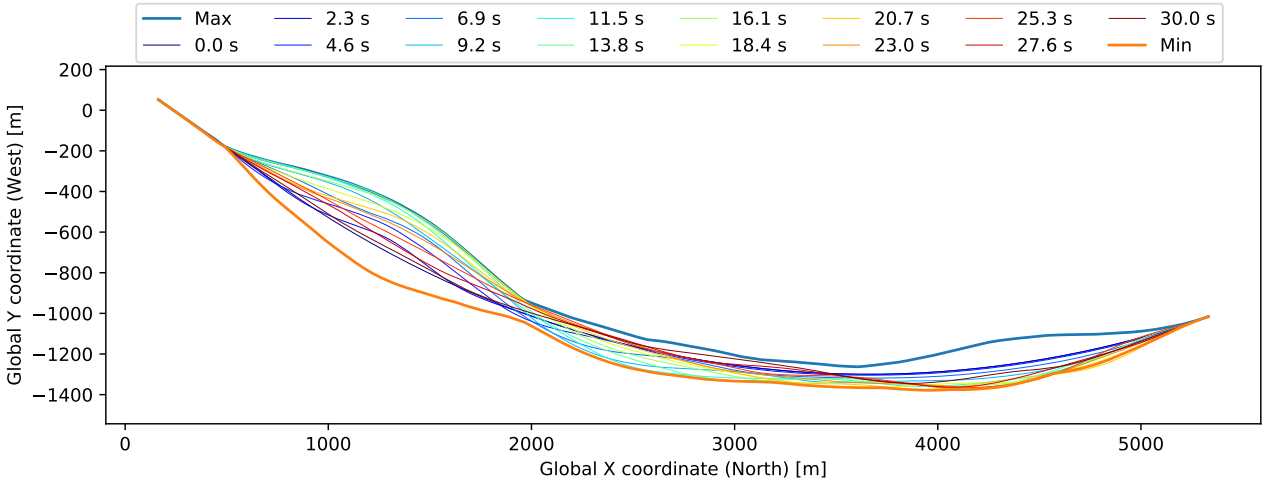

Figure 4.4: Bridgegirder deflection (10x displacment scaling)

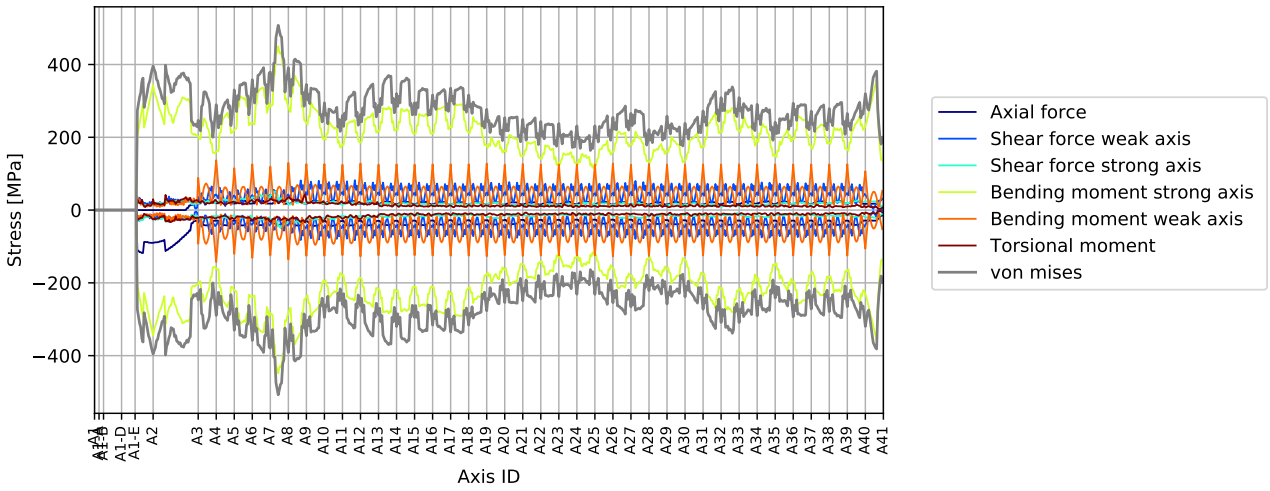

Figure 4.5: Stress envelope from all force components

4.1.2 Envelope plots

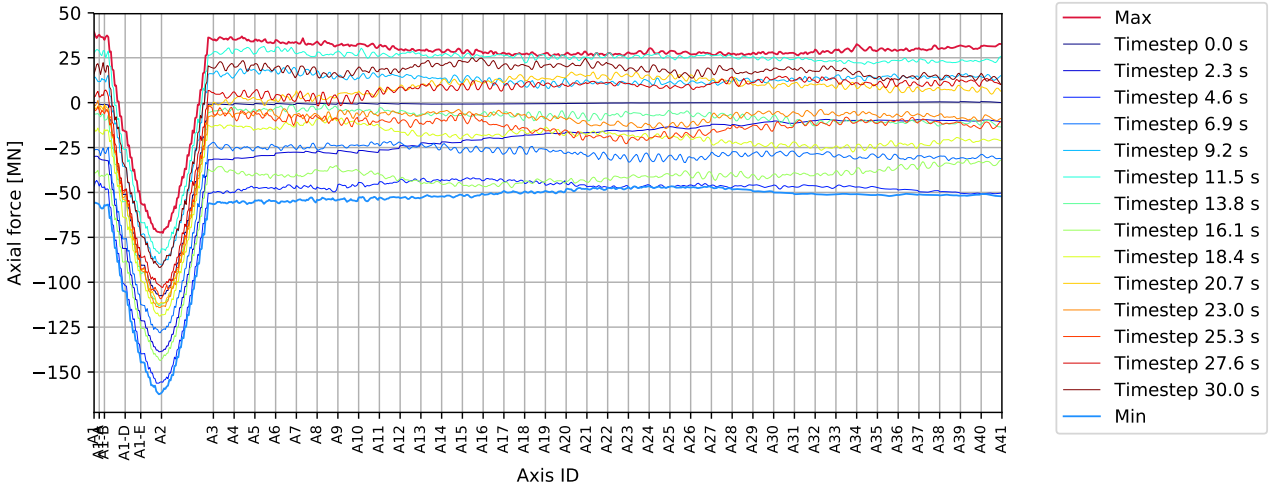

Figure 4.6: DH A7-A8 0deg - bridgegirder : Axial force [MN]

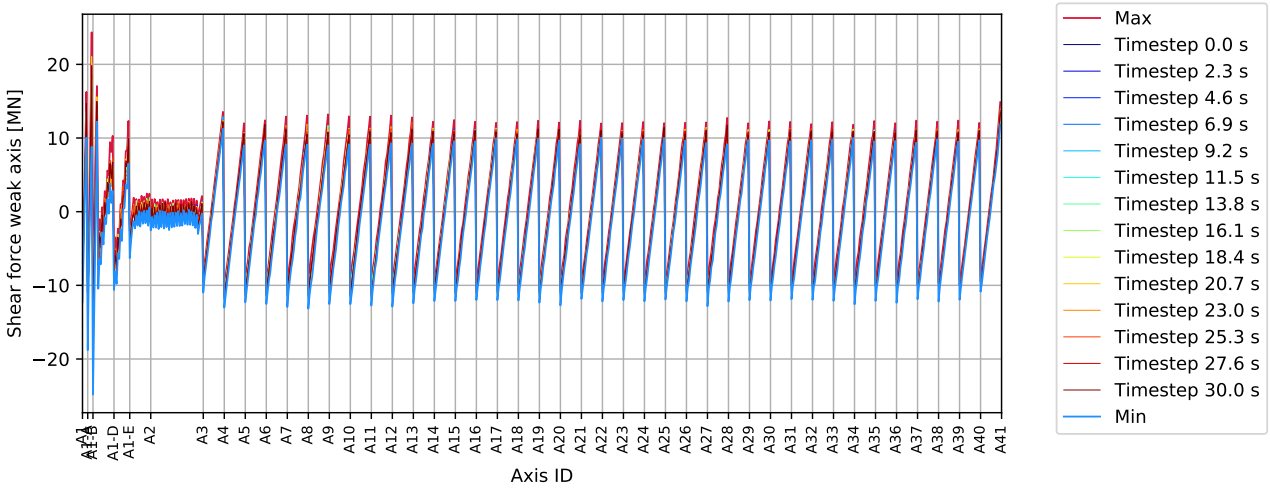

Figure 4.7: DH A7-A8 0deg - bridgegirder : Shear force weak axis [MN]

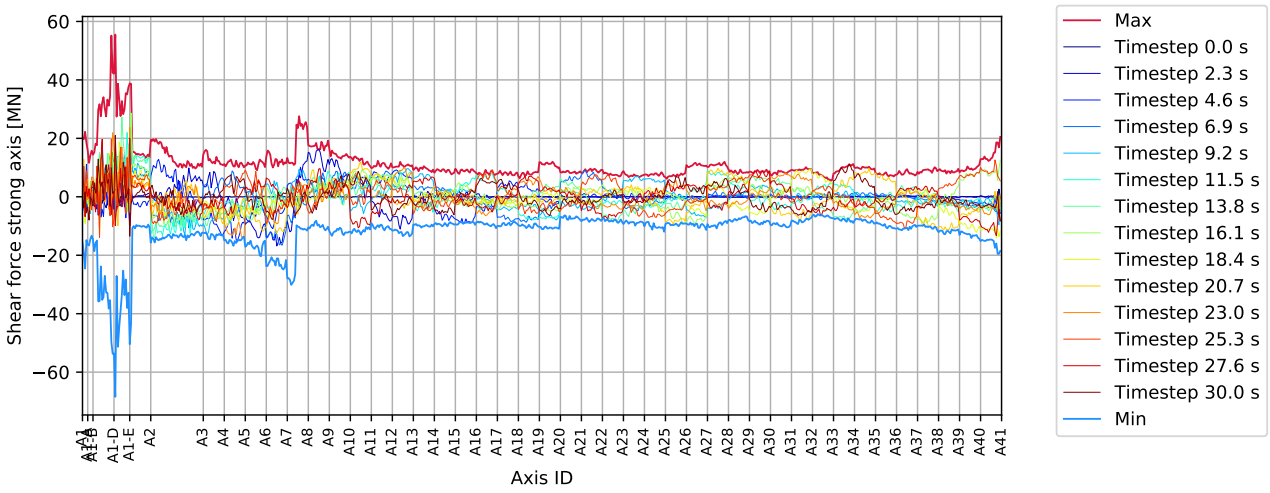

Figure 4.8: DH A7-A8 0deg - bridgegirder : Shear force strong axis [MN]

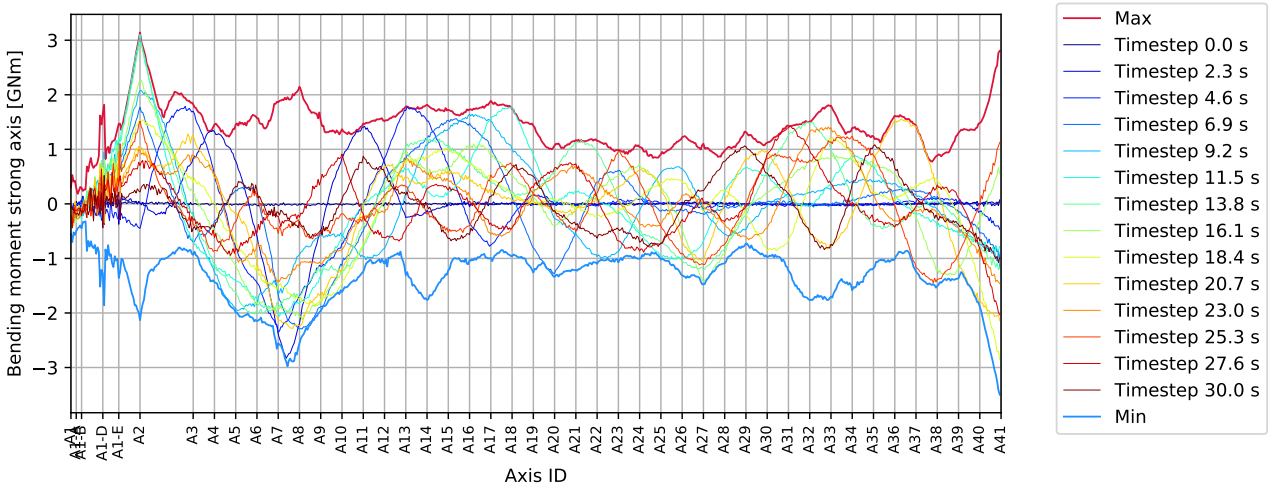

Figure 4.9: DH A7-A8 0deg - bridgegirder : Bending moment strong axis [GNm]

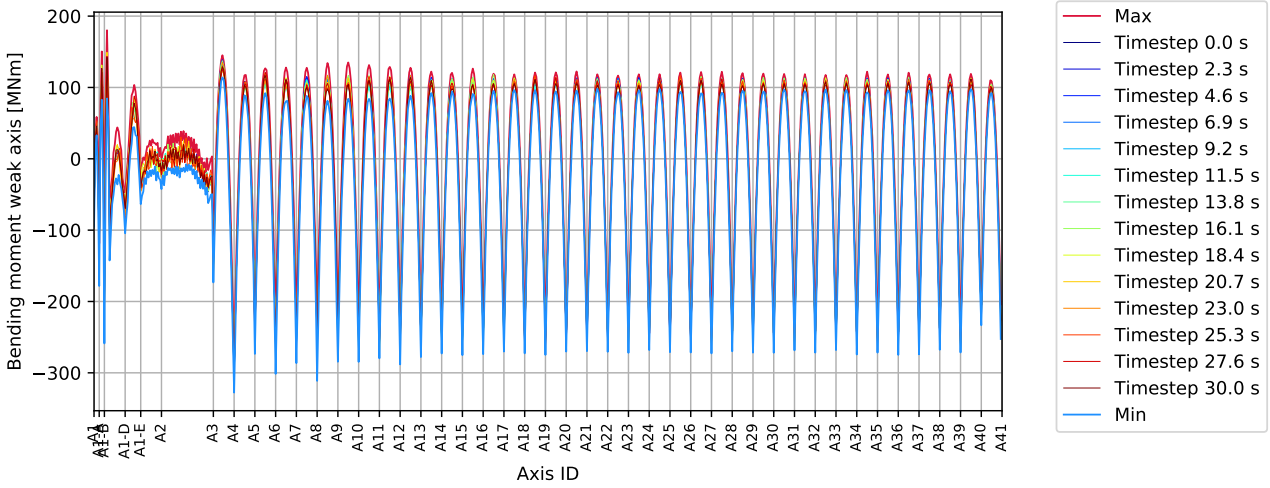

Figure 4.10: DH A7-A8 0deg - bridgegirder : Bending moment weak axis [MNm]

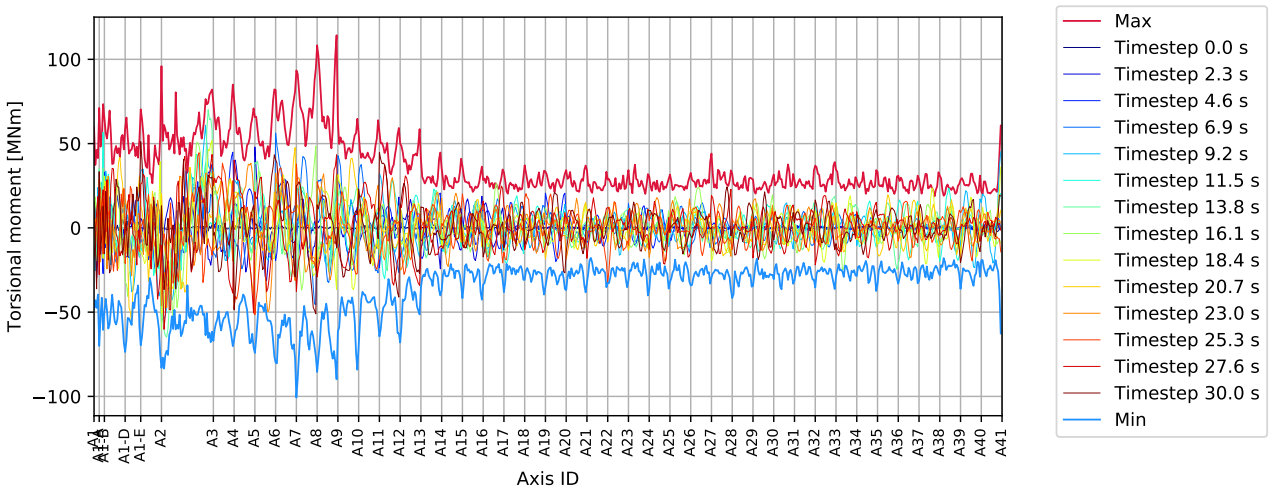

Figure 4.11: DH A7-A8 0deg - bridgegirder : Torsional moment [MNm]

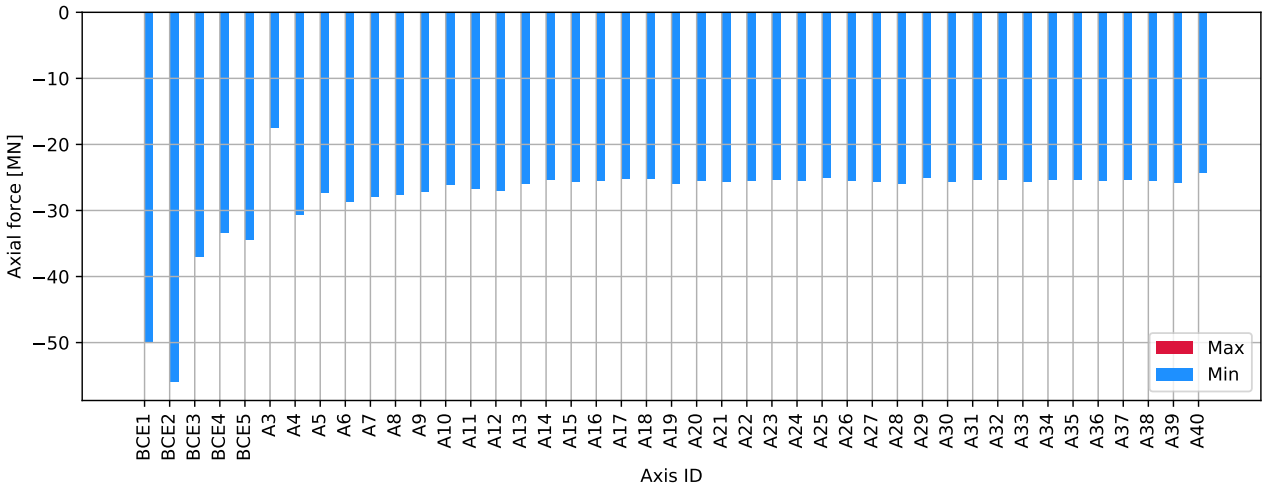

Figure 4.12: DH A7-A8 0deg - columns bottom : Axial force [MN]

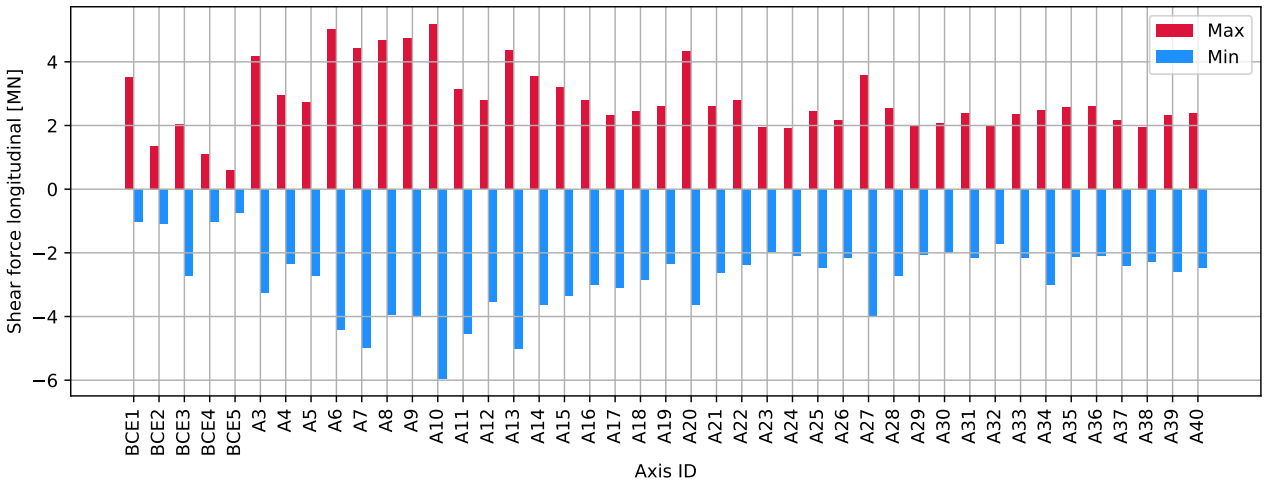

Figure 4.13: DH A7-A8 0deg - columns bottom : Shear force longitudinal [MN]

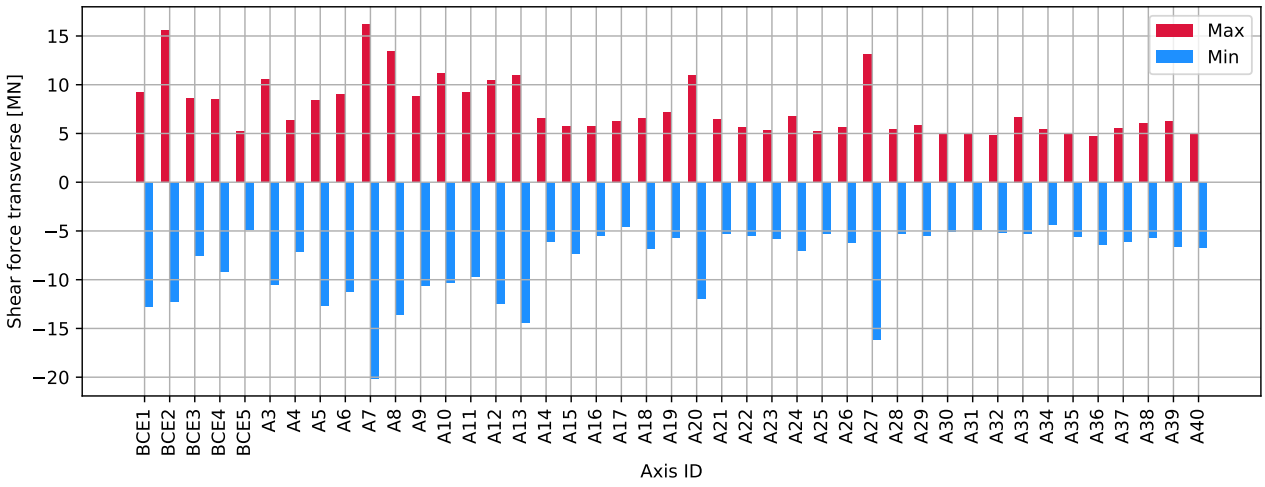

Figure 4.14: DH A7-A8 0deg - columns bottom : Shear force transverse [MN]

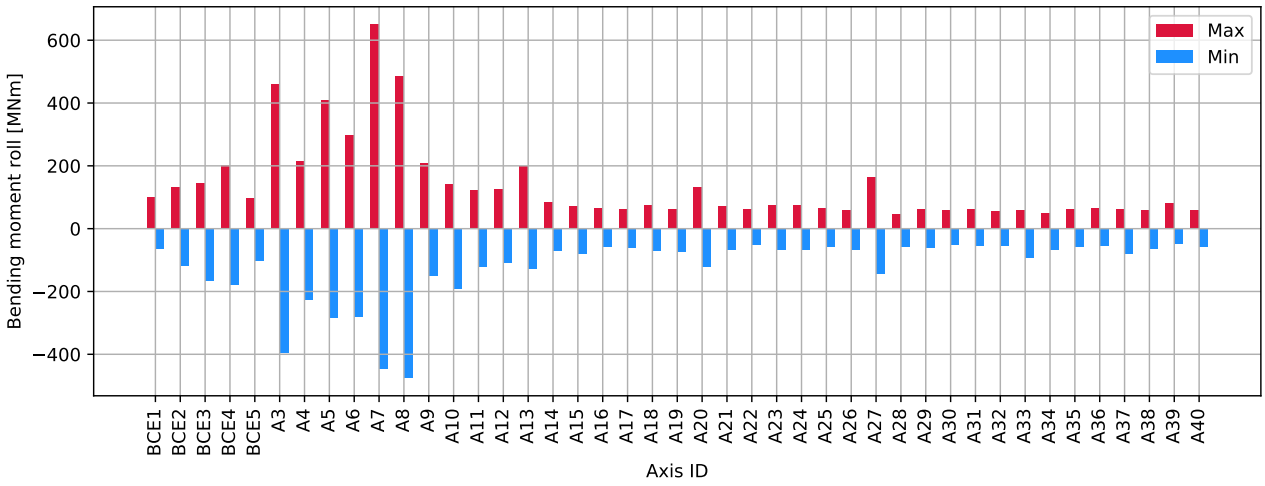

Figure 4.15: DH A7-A8 0deg - columns bottom : Bending moment roll [MNm]

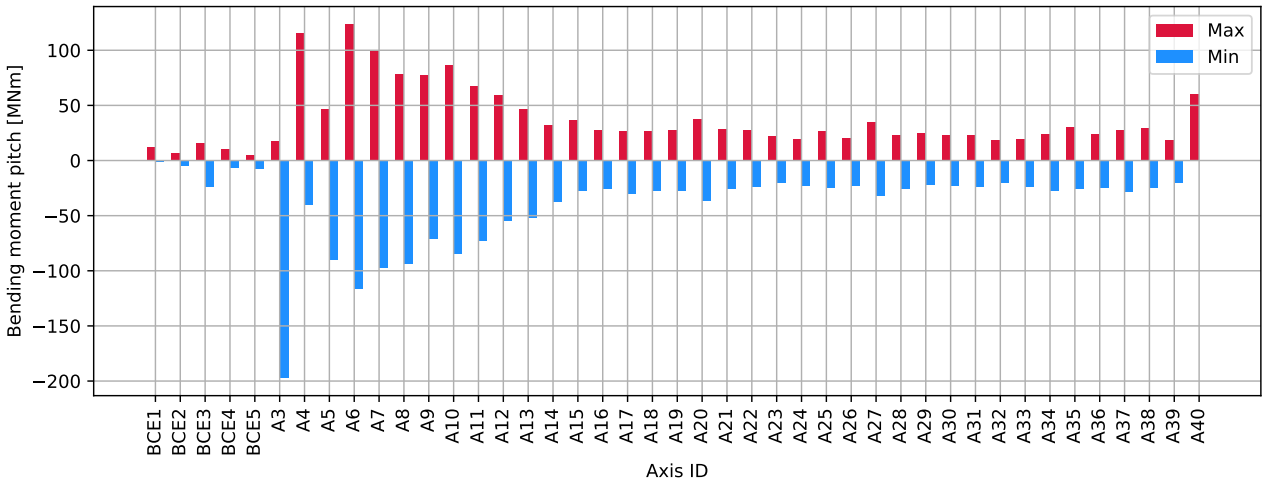

Figure 4.16: DH A7-A8 0deg - columns bottom : Bending moment pitch [MNm]

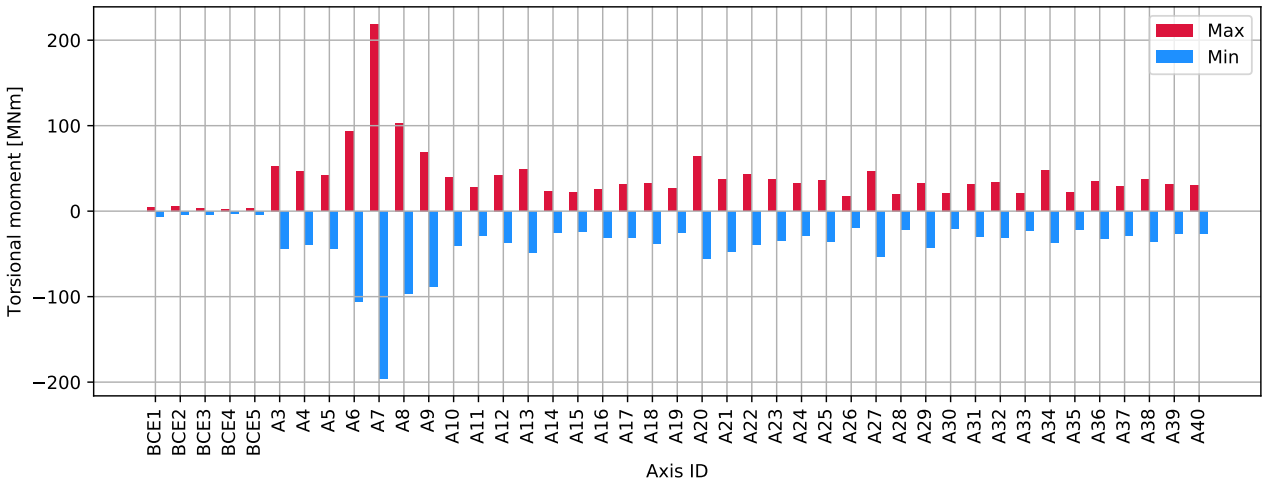

Figure 4.17: DH A7-A8 0deg - columns bottom : Torsional moment [MNm]

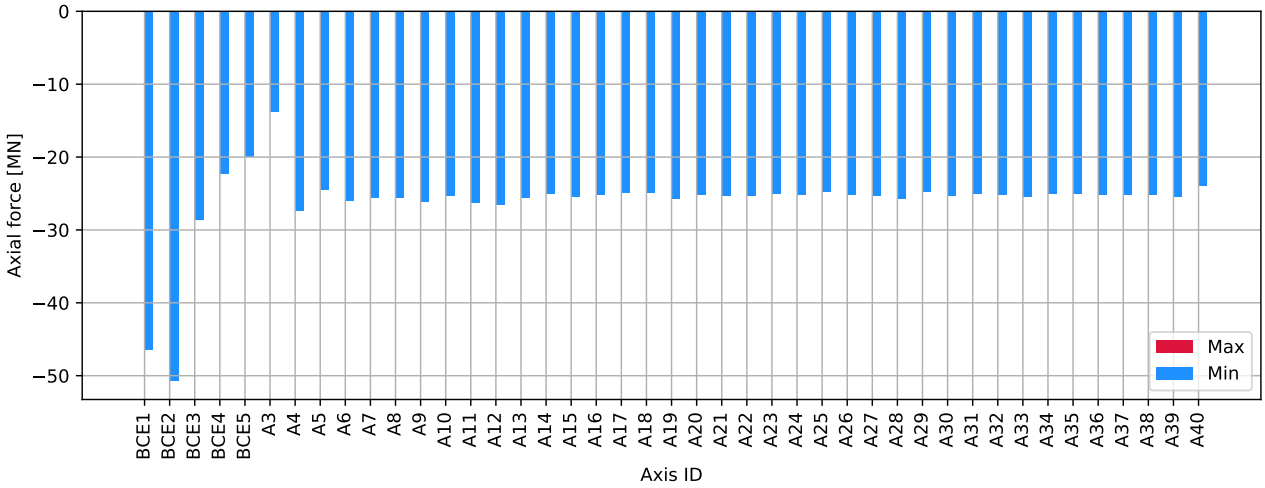

Figure 4.18: DH A7-A8 0deg - columns top : Axial force [MN]

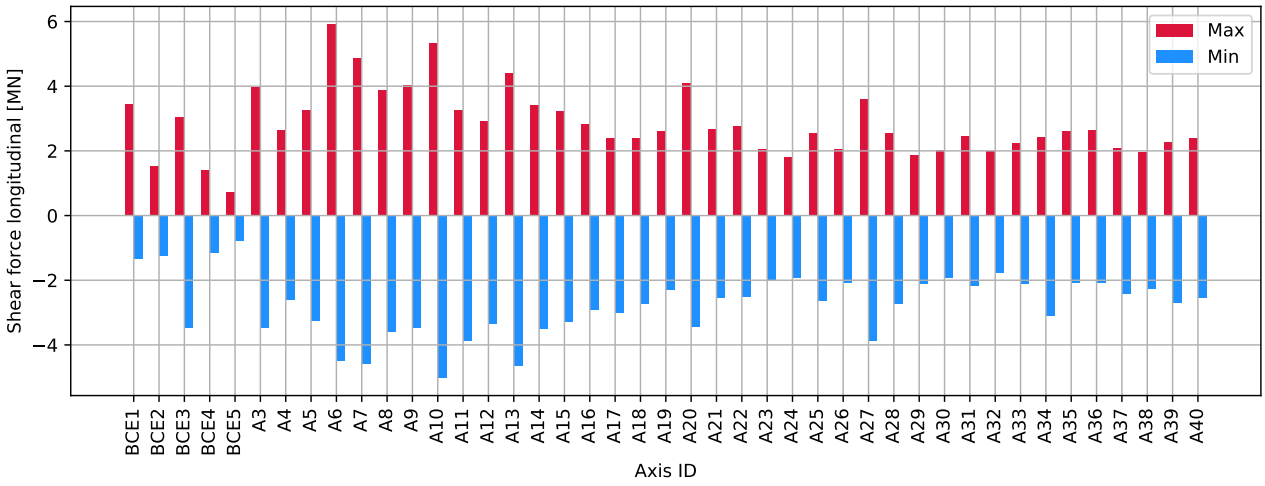

Figure 4.19: DH A7-A8 0deg - columns top : Shear force longitudinal [MN]

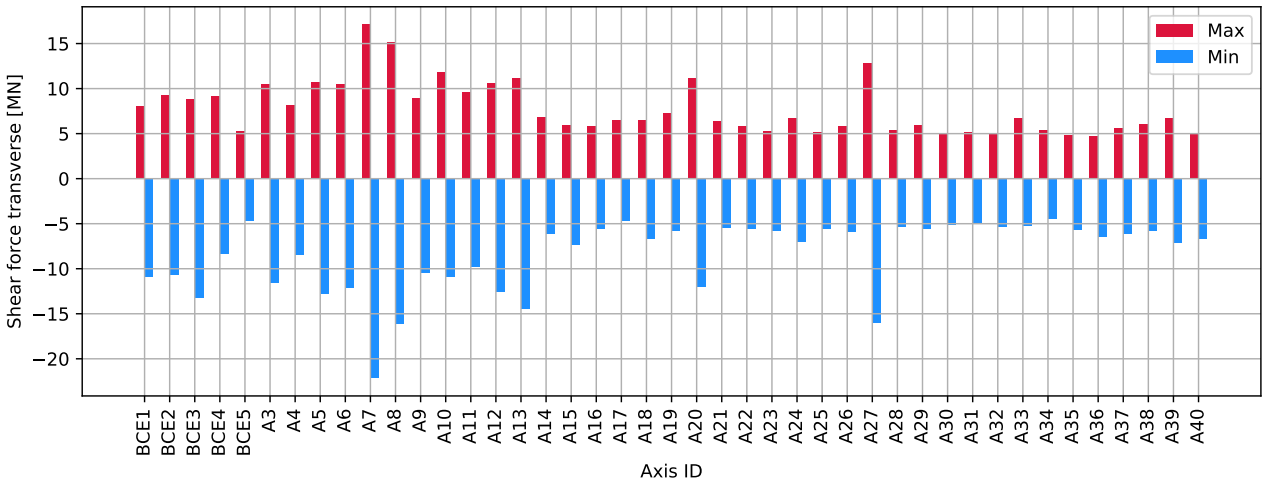

Figure 4.20: DH A7-A8 0deg - columns top : Shear force transverse [MN]

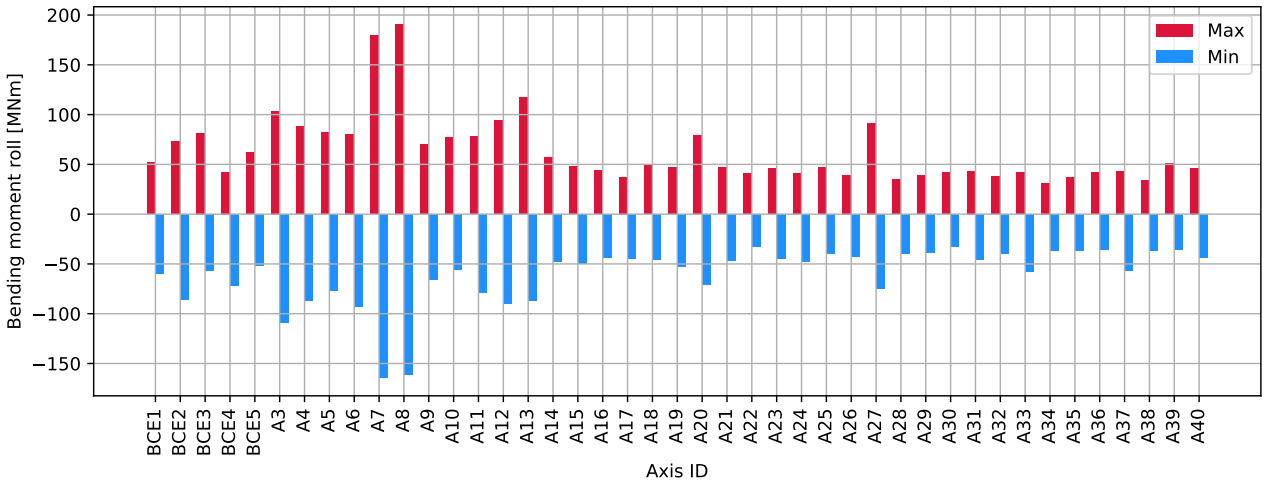

Figure 4.21: DH A7-A8 0deg - columns top : Bending moment roll [MNm]

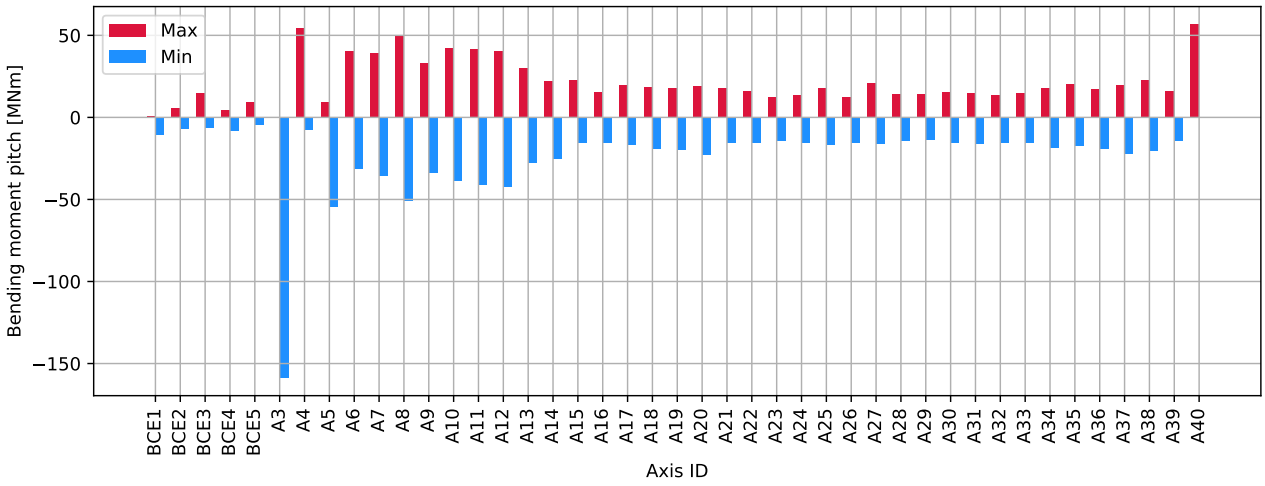

Figure 4.22: DH A7-A8 0deg - columns top : Bending moment pitch [MNm]

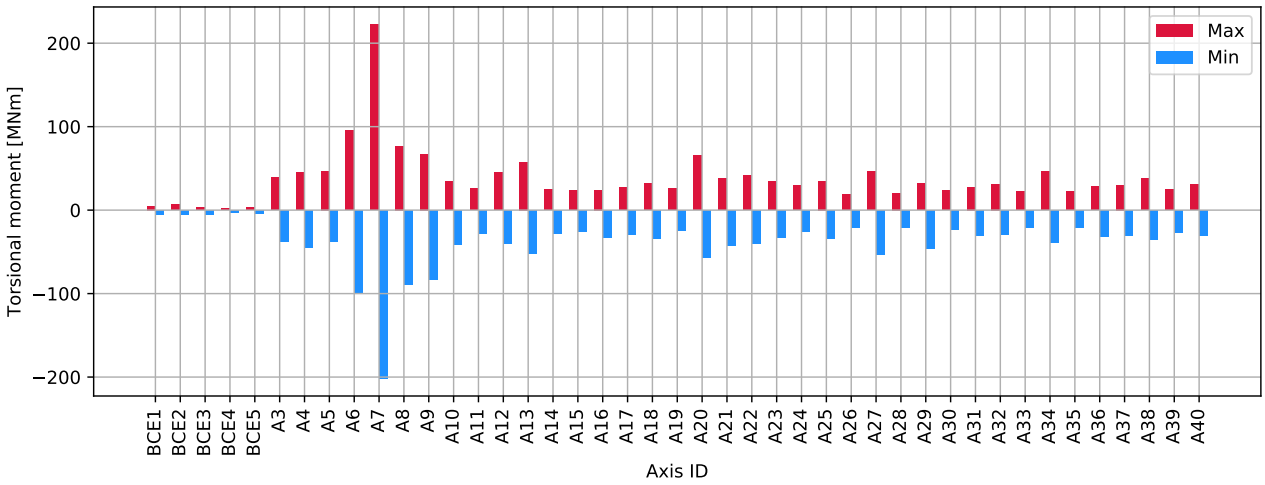

Figure 4.23: DH A7-A8 0deg - columns top : Torsional moment [MNm]

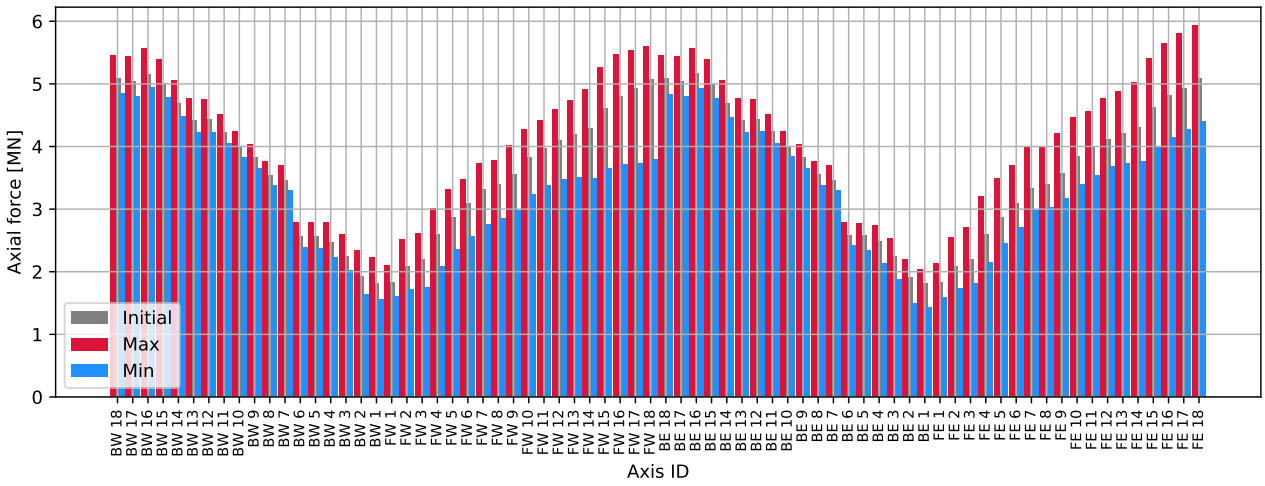

Figure 4.24: DH A7-A8 0deg - cables : Axial force [MN]

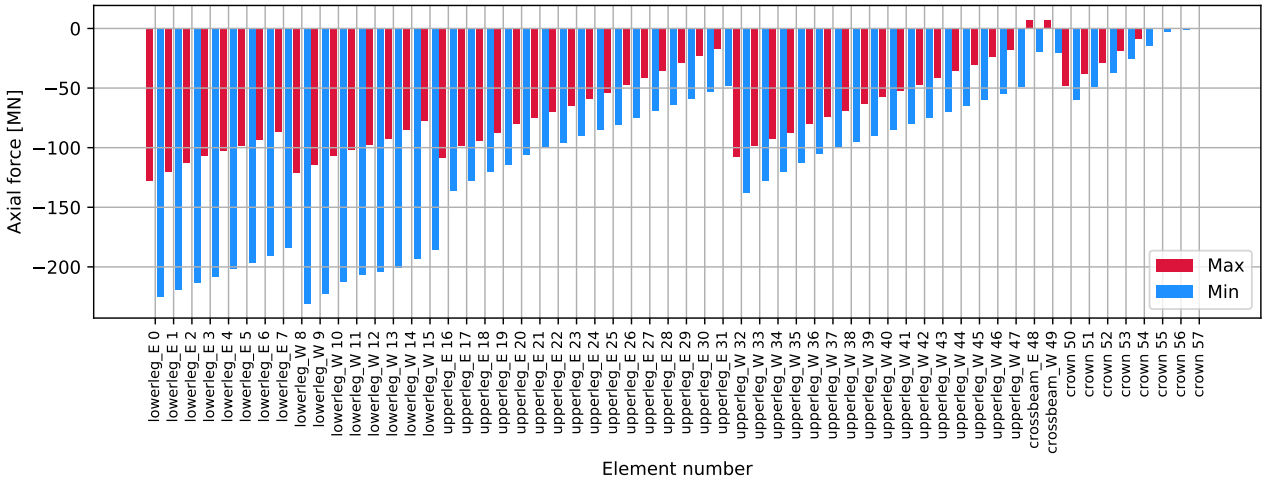

Figure 4.25: DH A7-A8 0deg - tower: Axial force [MN]

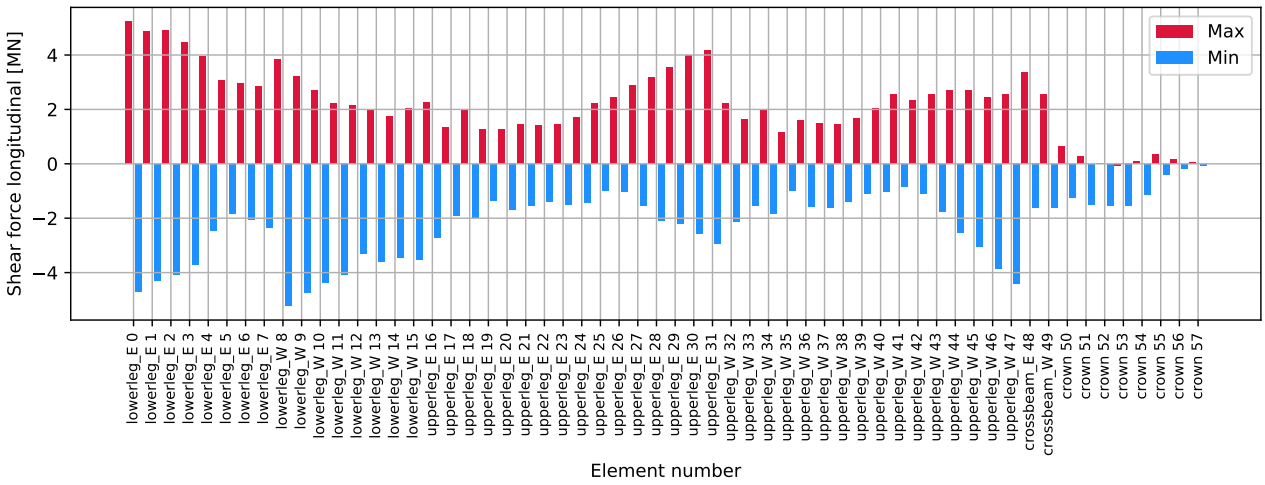

Figure 4.26: DH A7-A8 0deg - tower: Shear force longitudinal [MN]

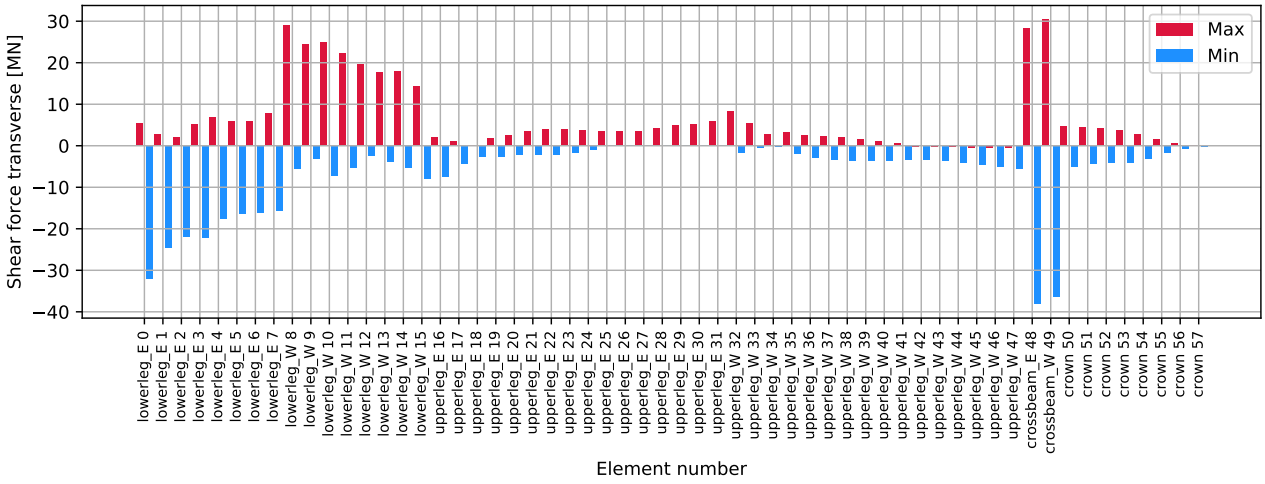

Figure 4.27: DH A7-A8 0deg - tower: Shear force transverse [MN]

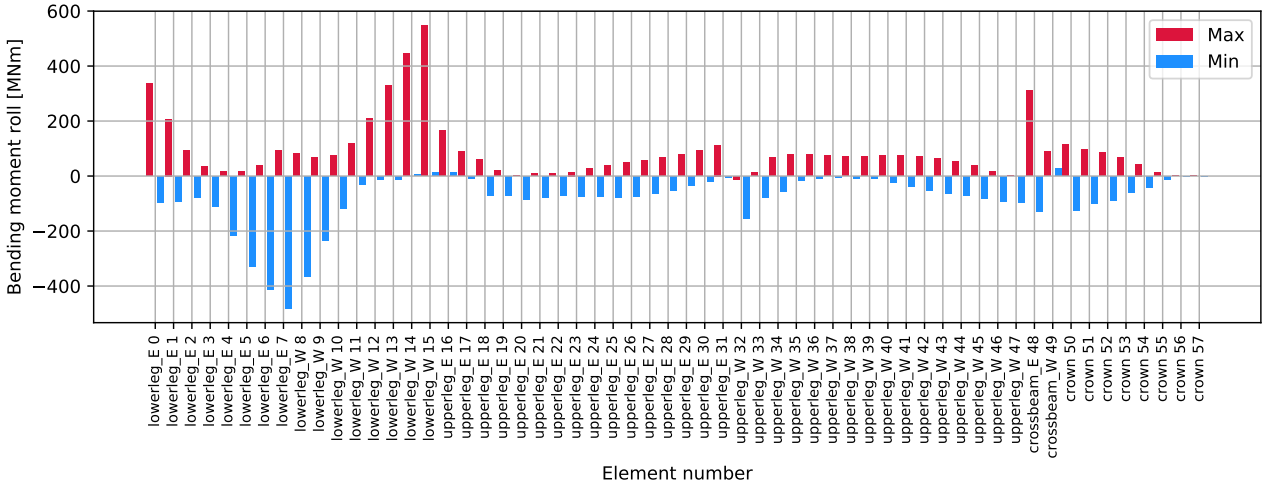

Figure 4.28: DH A7-A8 0deg - tower: Bending moment roll [MNm]

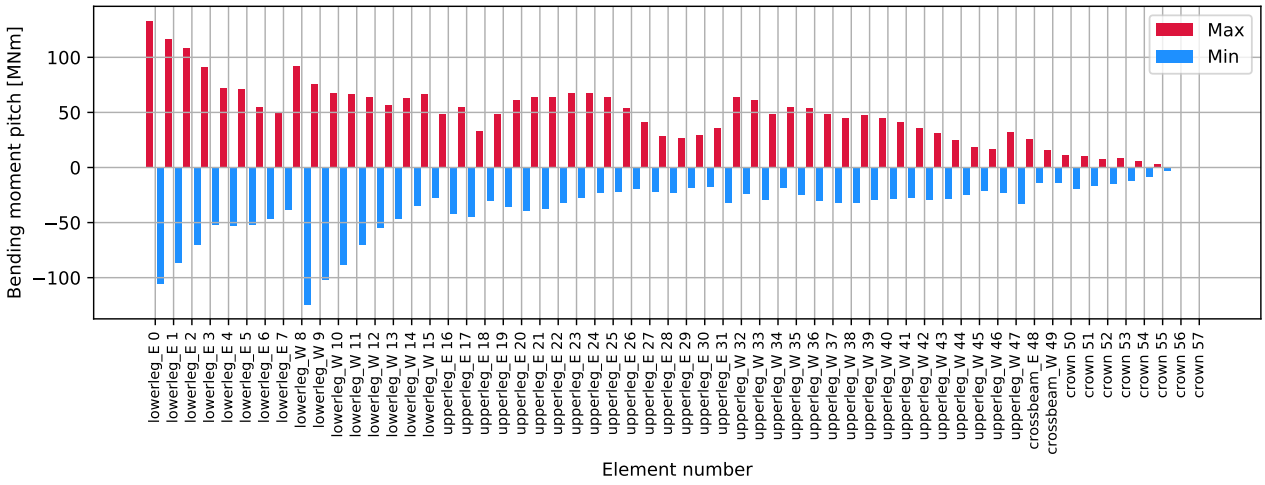

Figure 4.29: DH A7-A8 0deg - tower: Bending moment pitch [MNm]

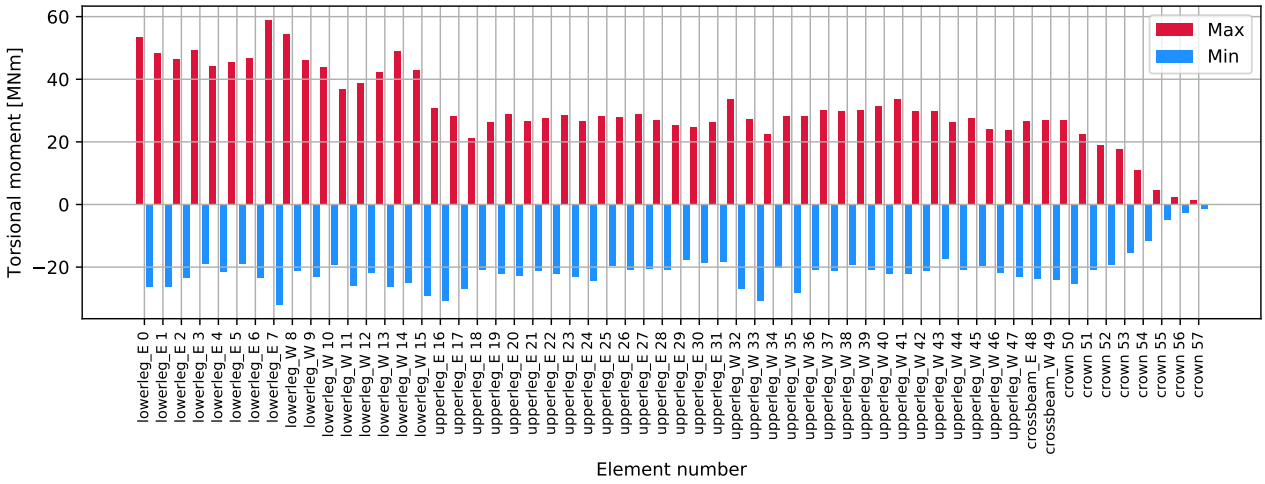

Figure 4.30: DH A7-A8 0deg - tower: Torsional moment [MNm]

4.1.3 Time series

Note : Time series are filtered using a Saviotzky-Golay filter for increased readability of the time history plots. Hence, maximum values that occur due to a rapid vibration are not shown in the plots. For maximum values, refer to the tabulated data.
All elements are numbered from South to North, bottom to top

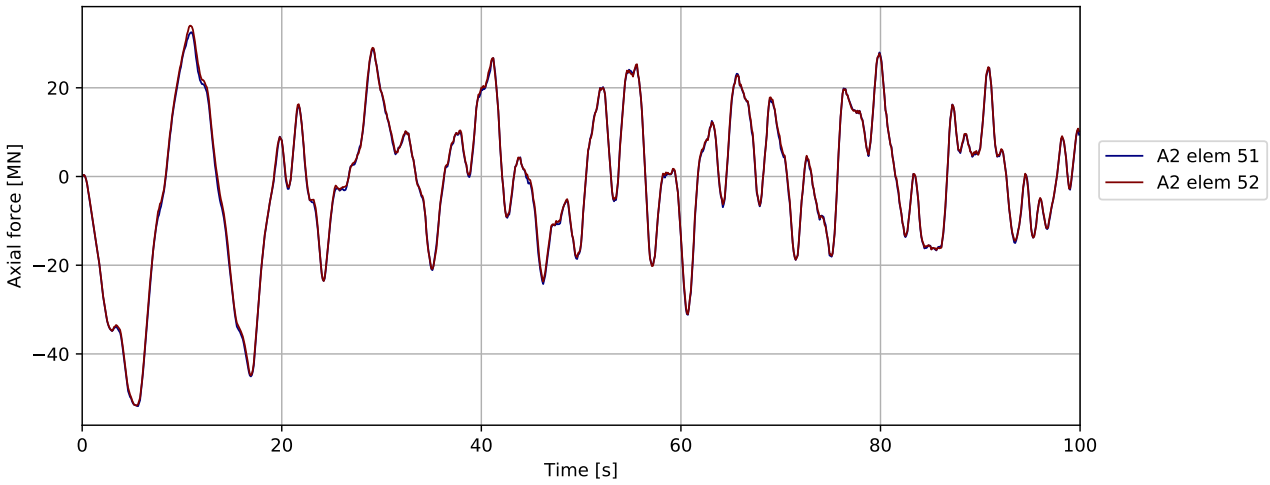

Figure 4.31: DH A7-A8 0deg - bridgegirder @ pylon: Axial force [MN]

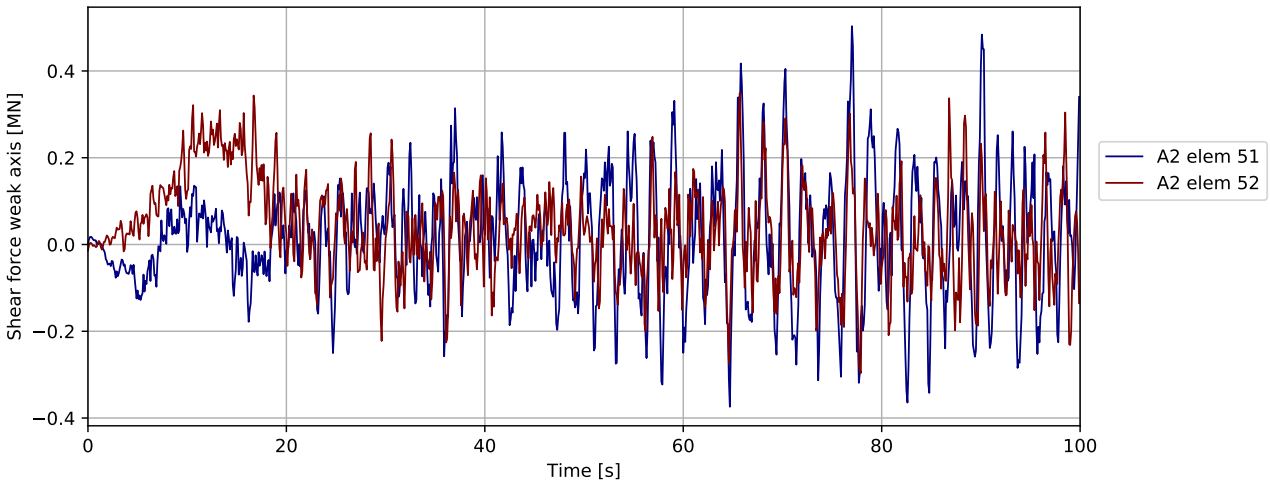

Figure 4.32: DH A7-A8 0deg - bridgegirder @ pylon: Shear force weak axis [MN]

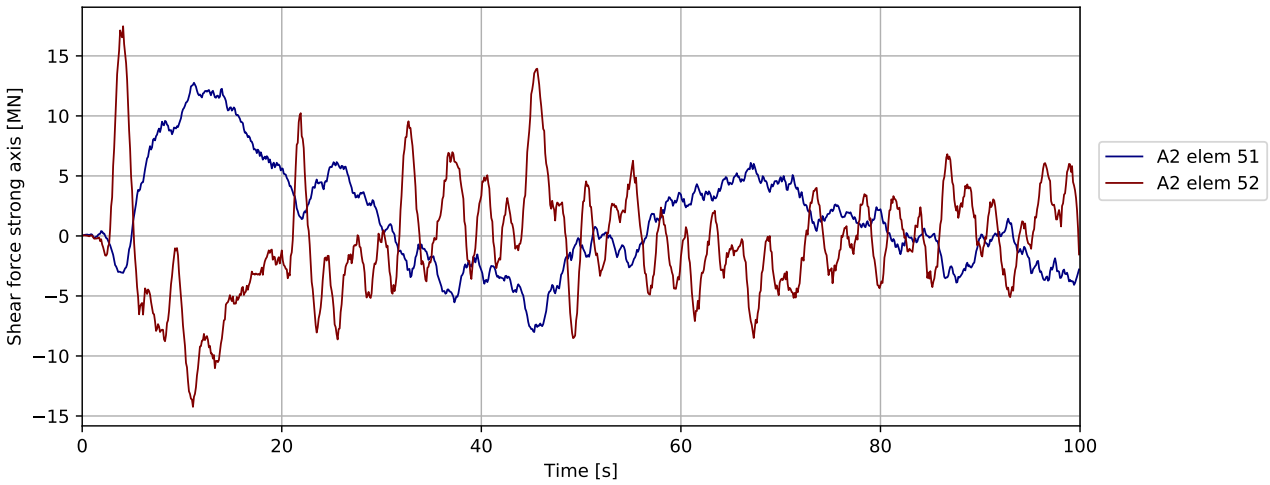

Figure 4.33: DH A7-A8 0deg - bridgegirder @ pylon: Shear force strong axis [MN]

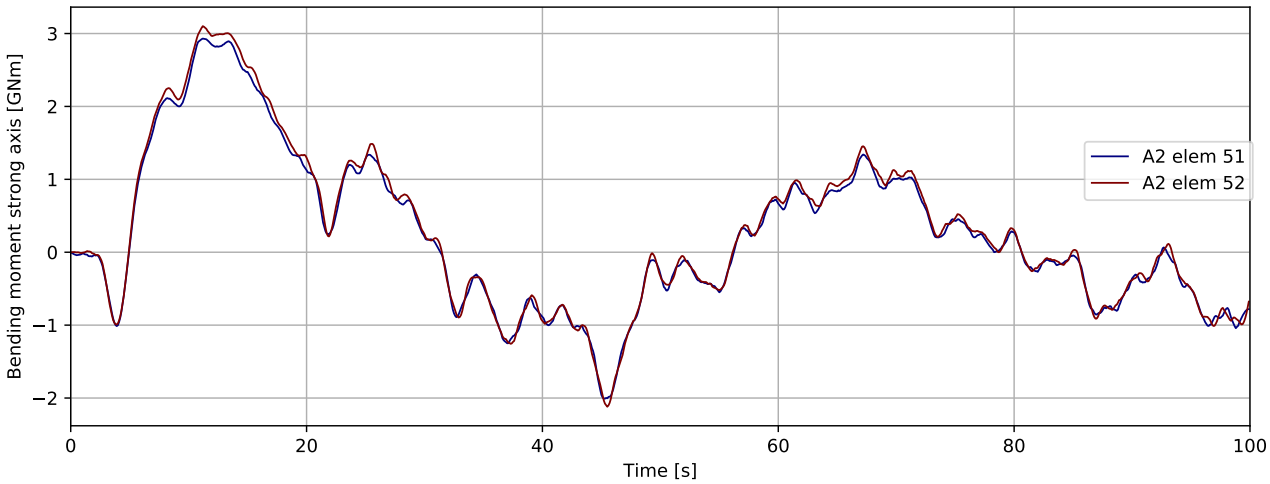

Figure 4.34: DH A7-A8 0deg - bridgegirder @ pylon: Bending moment strong axis [GNm]

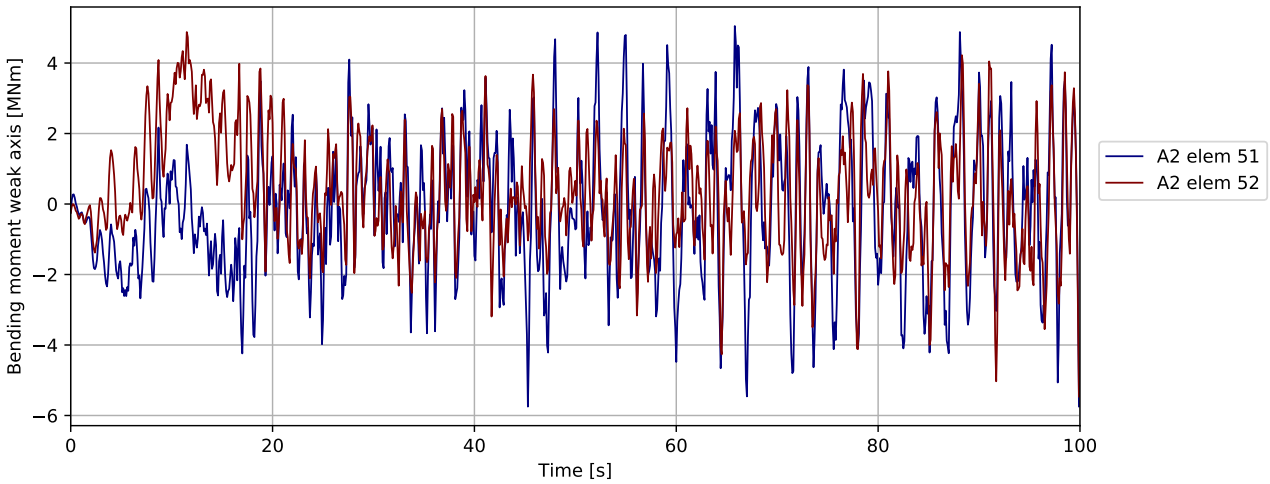

Figure 4.35: DH A7-A8 0deg - bridgegirder @ pylon: Bending moment weak axis [MNm]

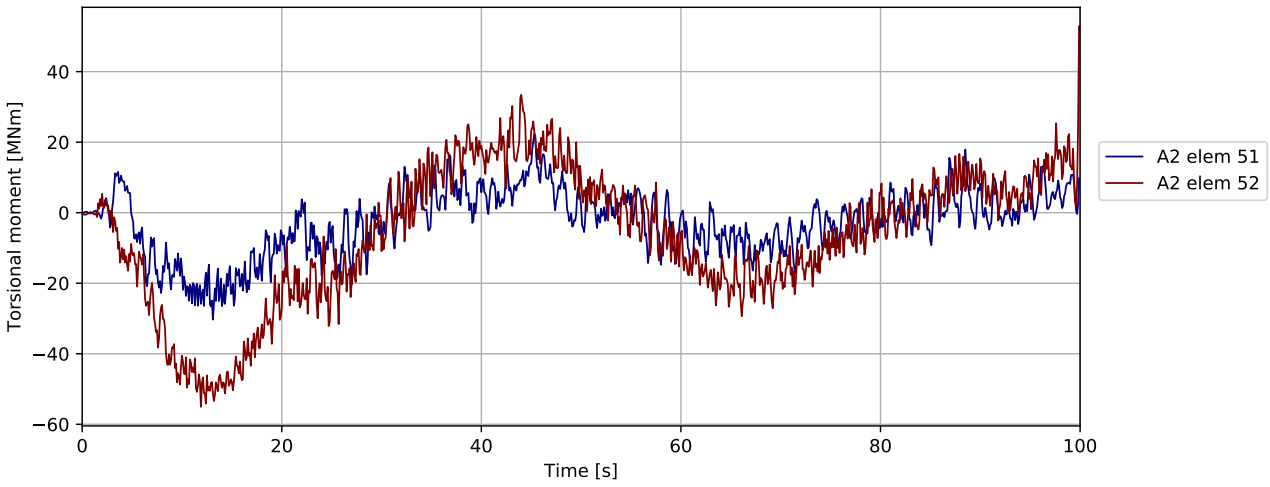

Figure 4.36: DH A7-A8 0deg - bridgegirder @ pylon: Torsional moment [MNm]

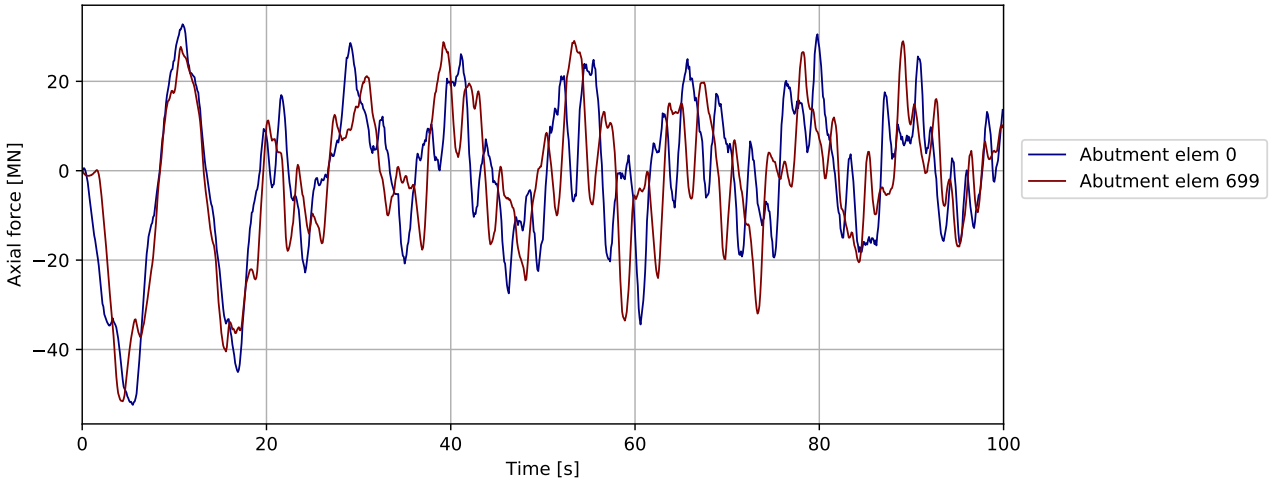

Figure 4.37: DH A7-A8 0deg - bridgegirder @abutments: Axial force [MN]

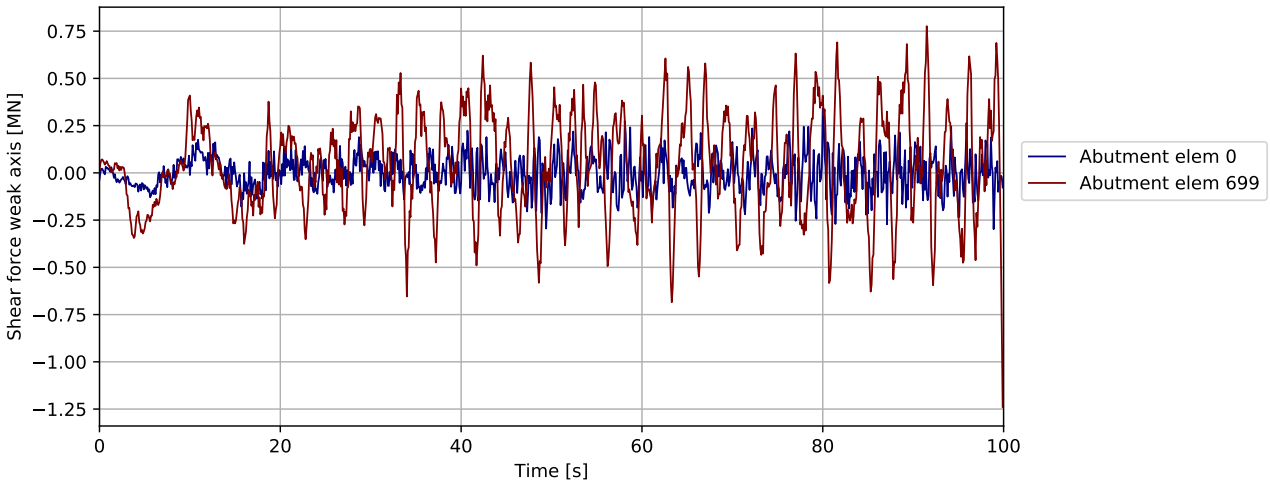

Figure 4.38: DH A7-A8 0deg - bridgegirder @abutments: Shear force weak axis [MN]

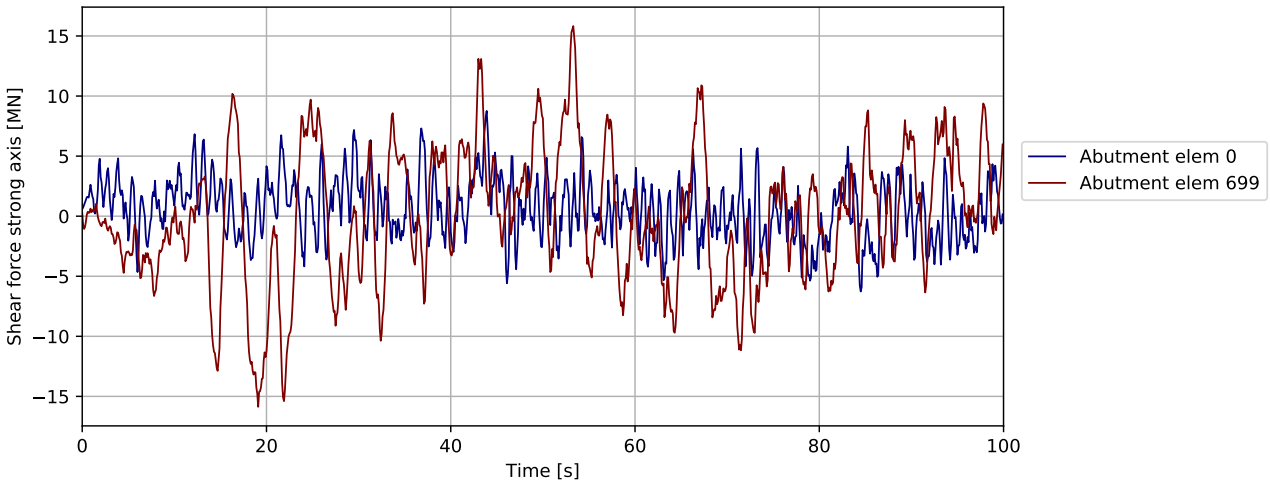

Figure 4.39: DH A7-A8 0deg - bridgegirder @abutments: Shear force strong axis [MN]

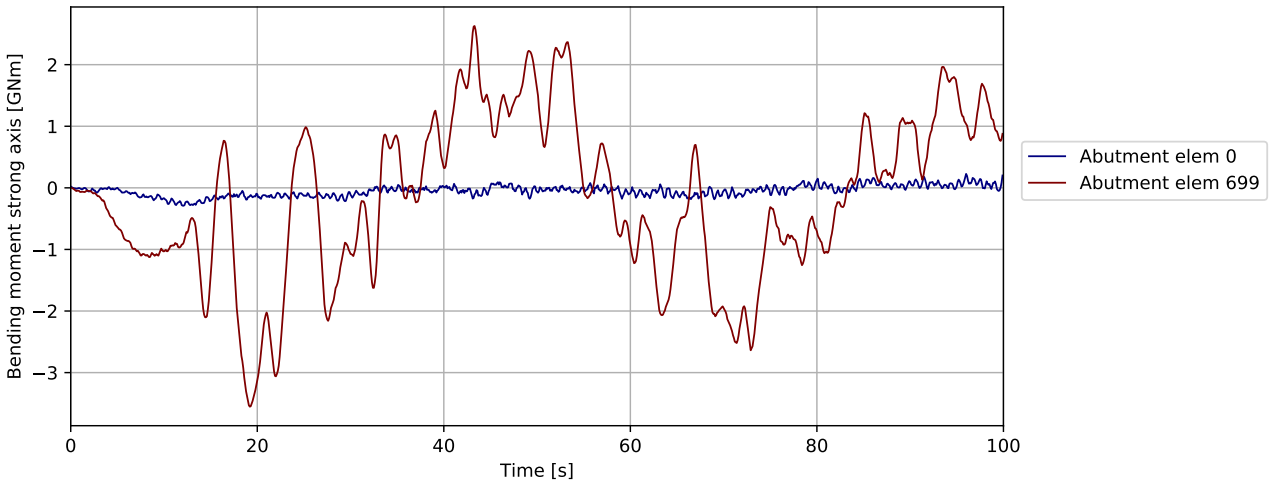

Figure 4.40: DH A7-A8 0deg - bridgegirder @abutments: Bending moment strong axis [GNm]

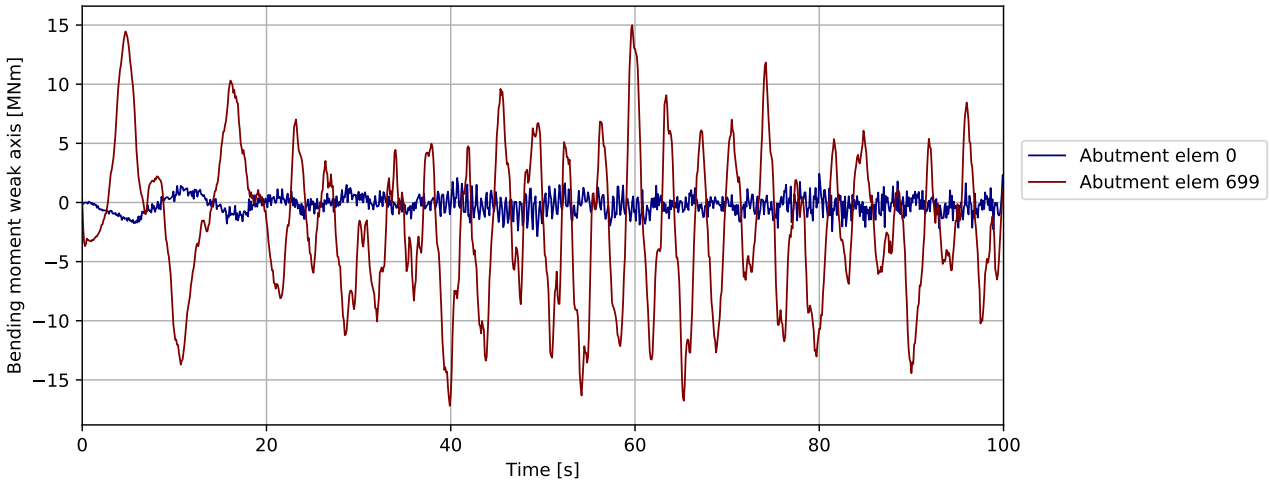

Figure 4.41: DH A7-A8 0deg - bridgegirder @abutments: Bending moment weak axis [MNm]

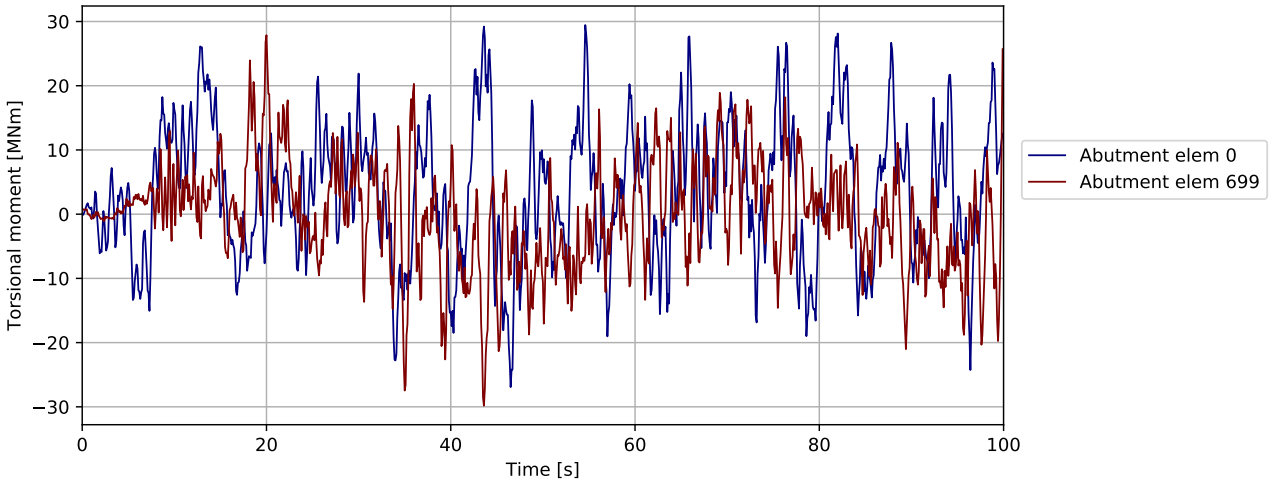

Figure 4.42: DH A7-A8 0deg - bridgegirder @abutments: Torsional moment [MNm]

Note : Compressive spring force is negative

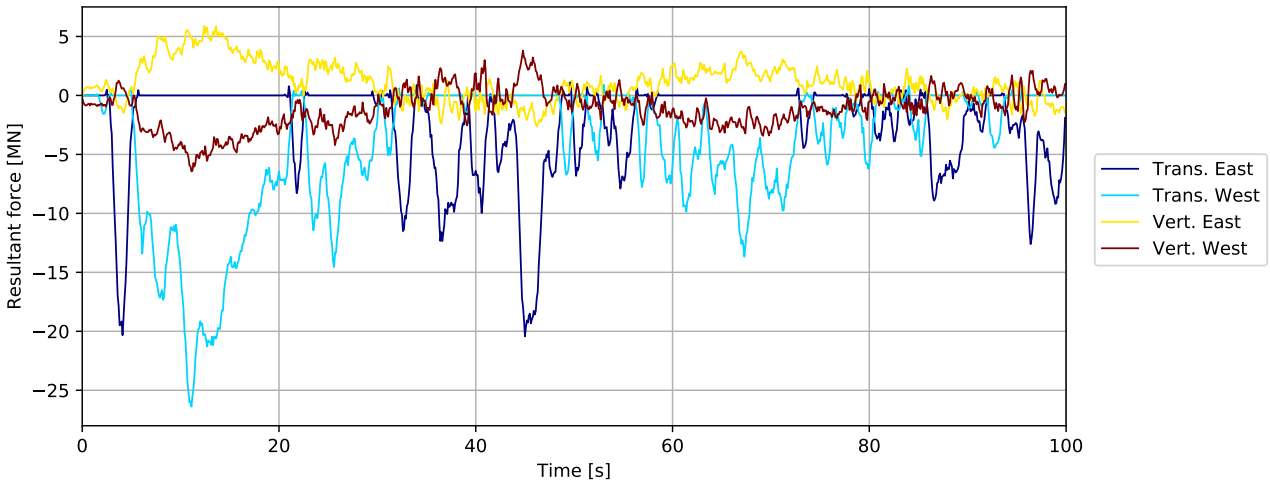

Figure 4.43: DH A7-A8 0deg - bridgegirder supports in tower: Resultant force [MN]

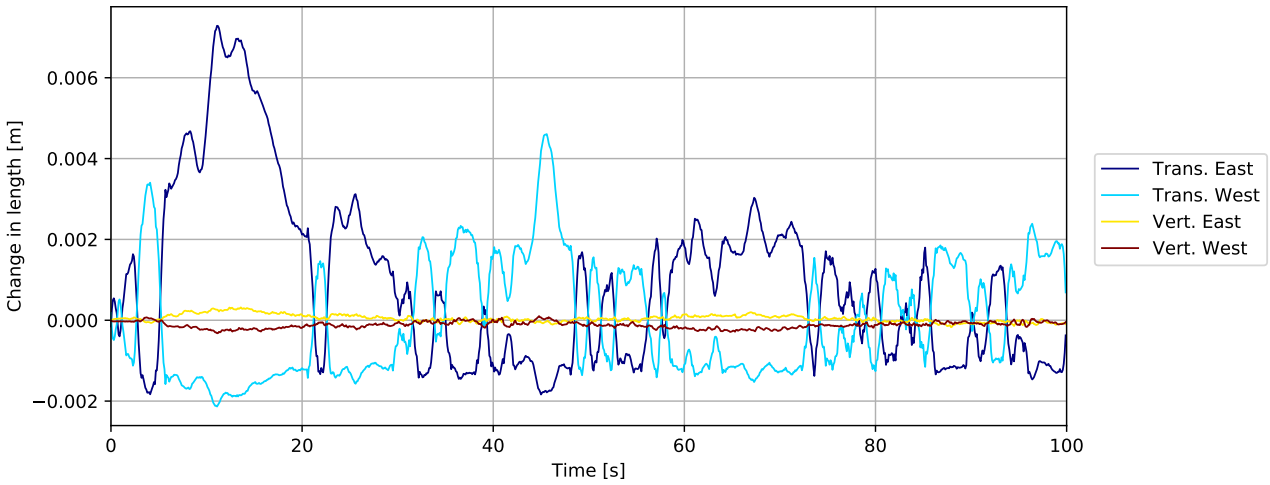

Figure 4.44: DH A7-A8 0deg - bridgegirder supports in tower: Change in length [m]

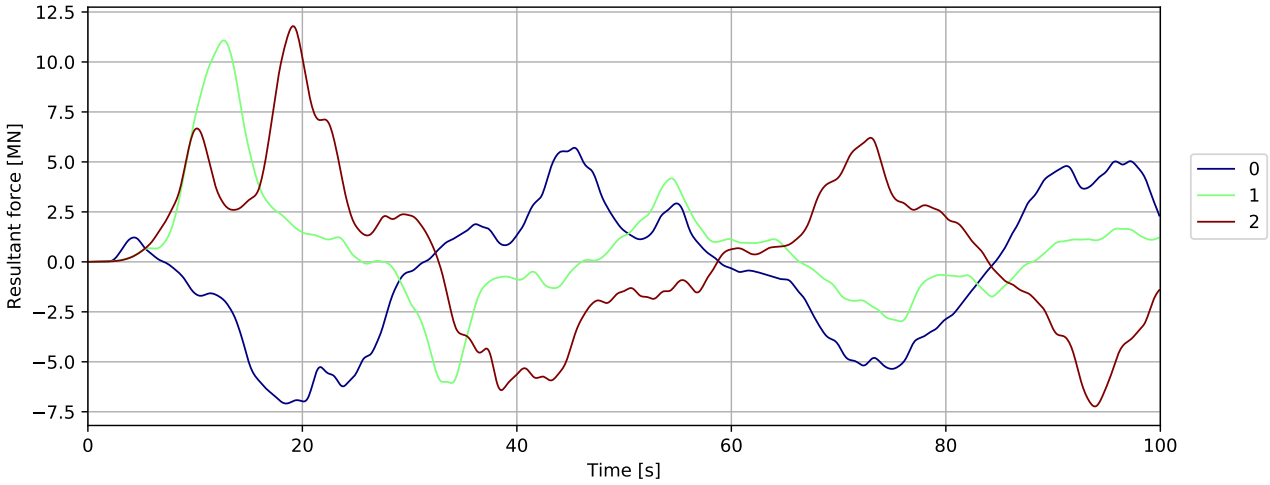

Figure 4.45: Mooring force

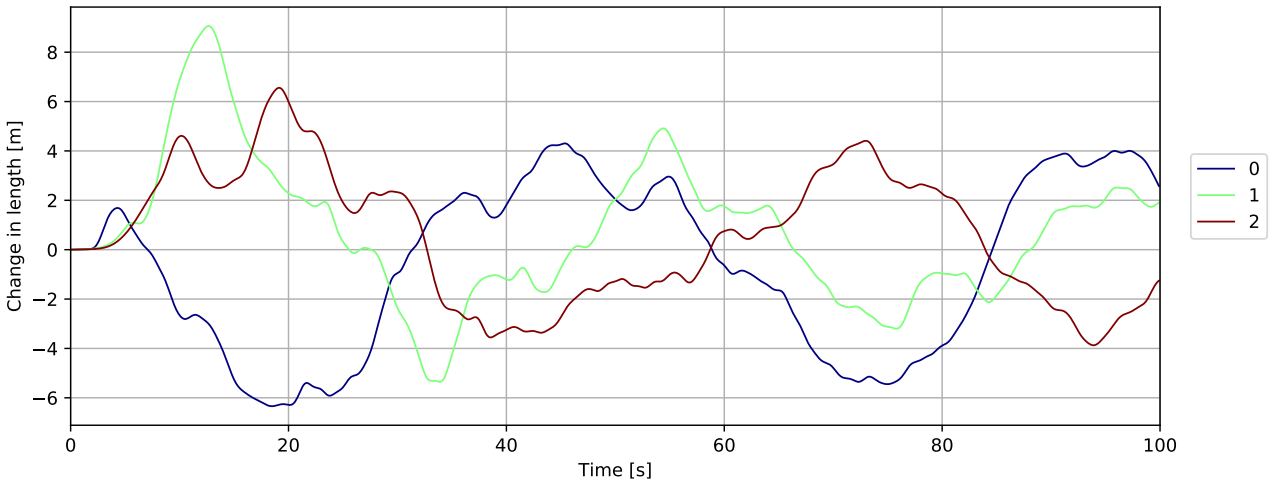

Figure 4.46: Mooring displacement

4.2 Deck house A8-A9 0deg

4.2.1 Overall response

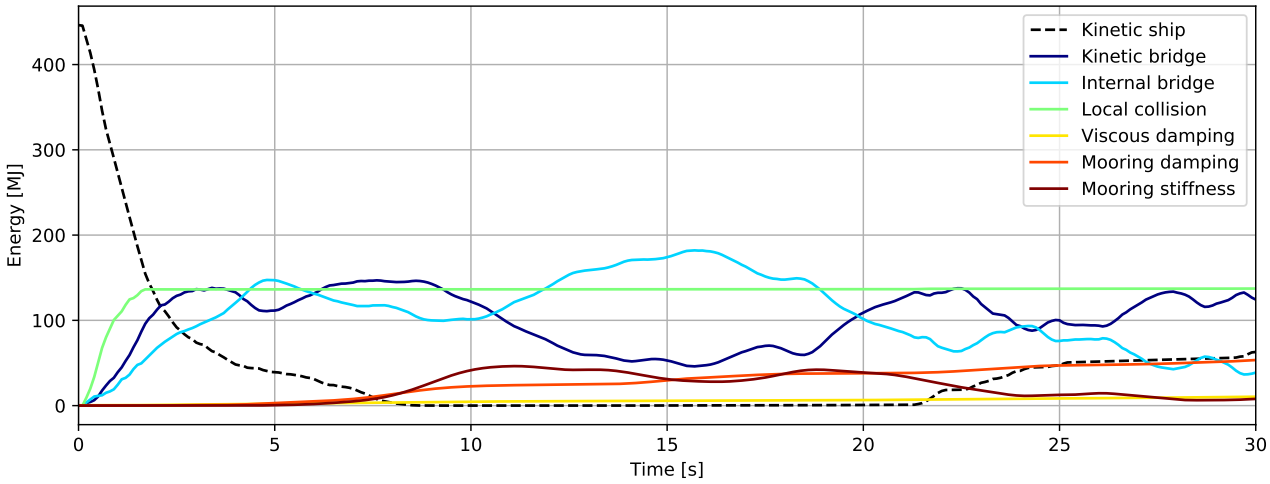

Figure 4.47: Energy [MJ] - initial phase

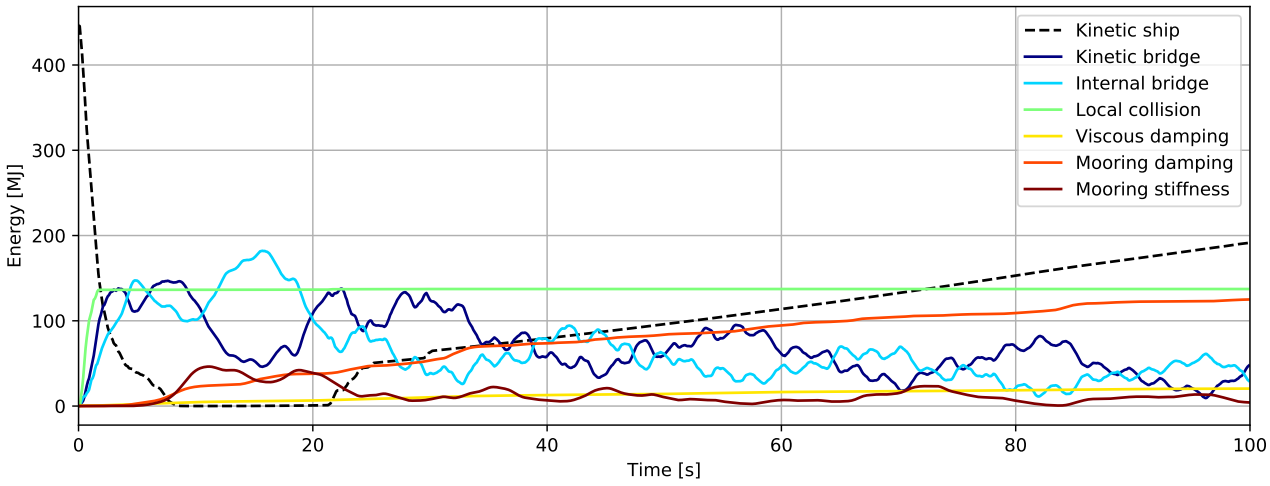

Figure 4.48: Energy [MJ]

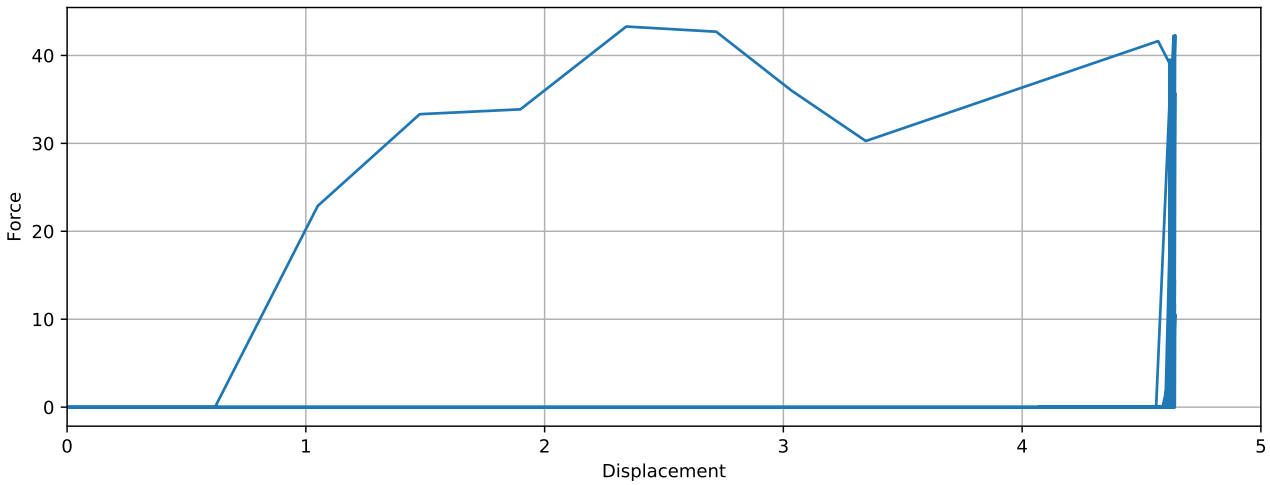

Figure 4.49: Simulated local collision force-displacement

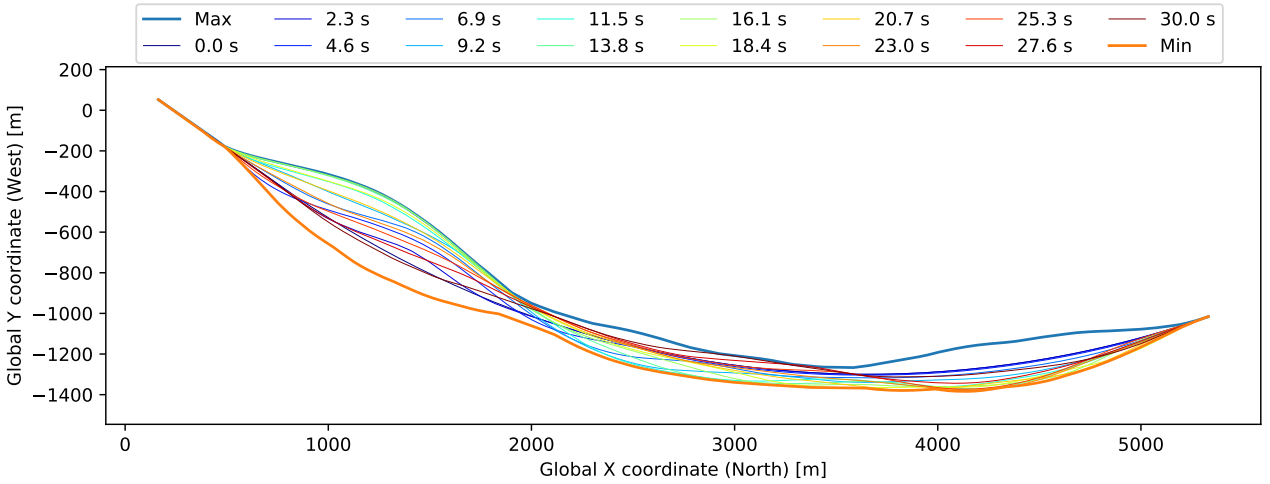

Figure 4.50: Bridgegirder deflection (10x displacment scaling)

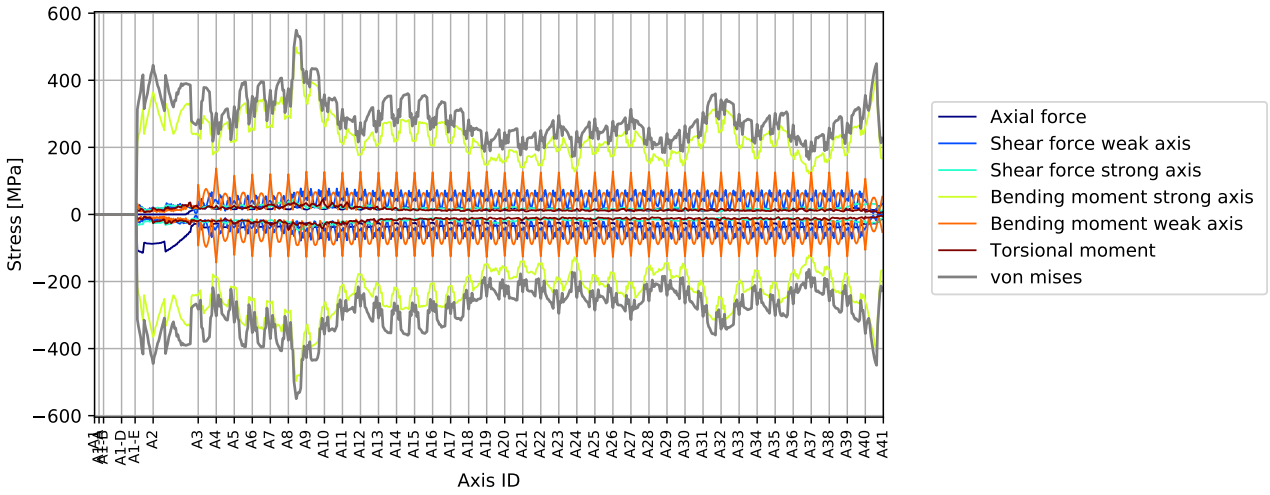

Figure 4.51: Stress envelope from all force components

4.2.2 Envelope plots

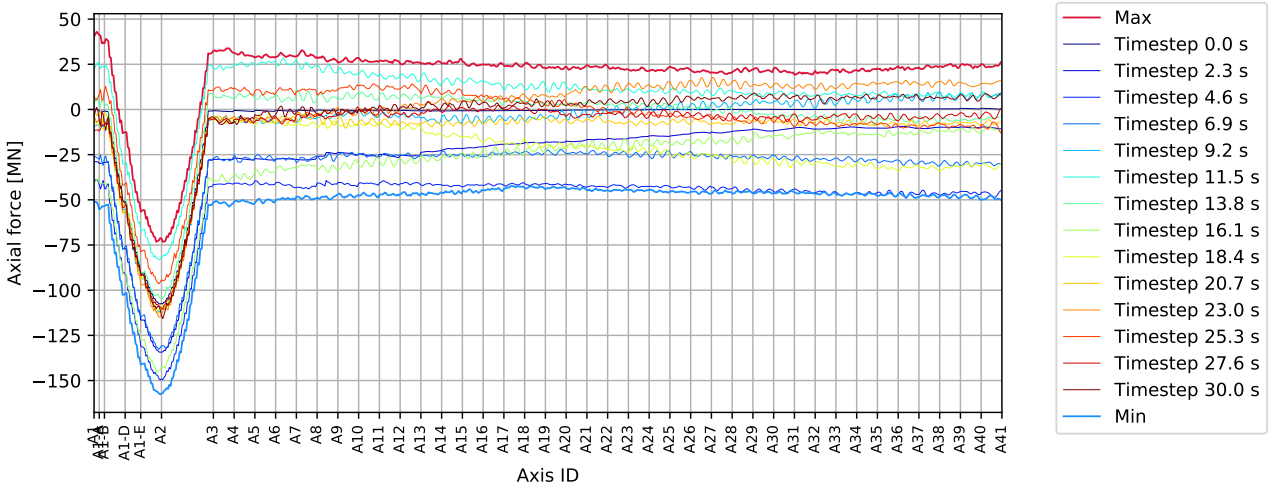

Figure 4.52: DH A8-A9 0deg - bridgegirder : Axial force [MN]

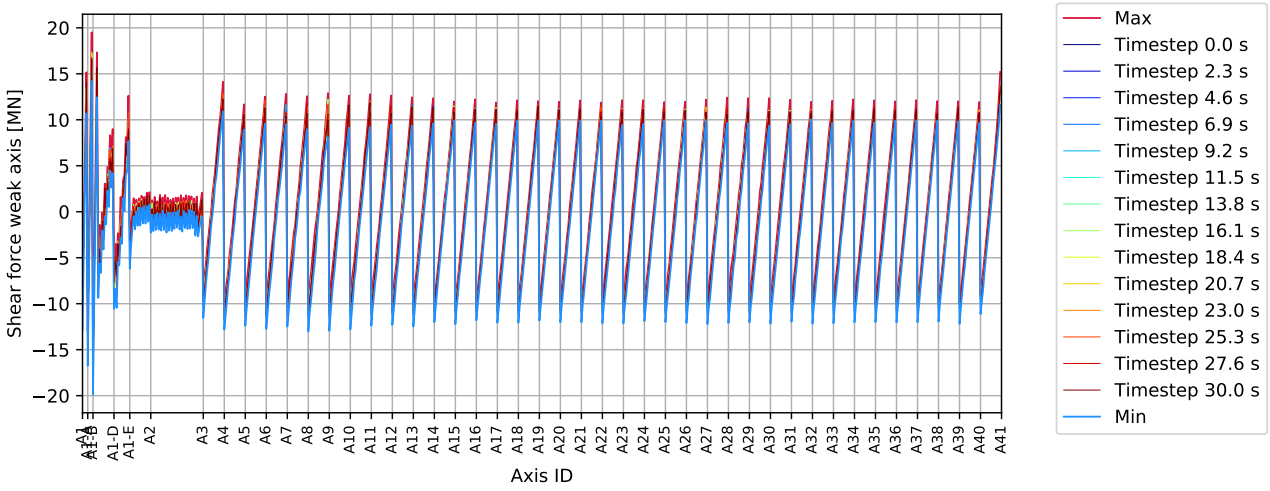

Figure 4.53: DH A8-A9 0deg - bridgegirder : Shear force weak axis [MN]

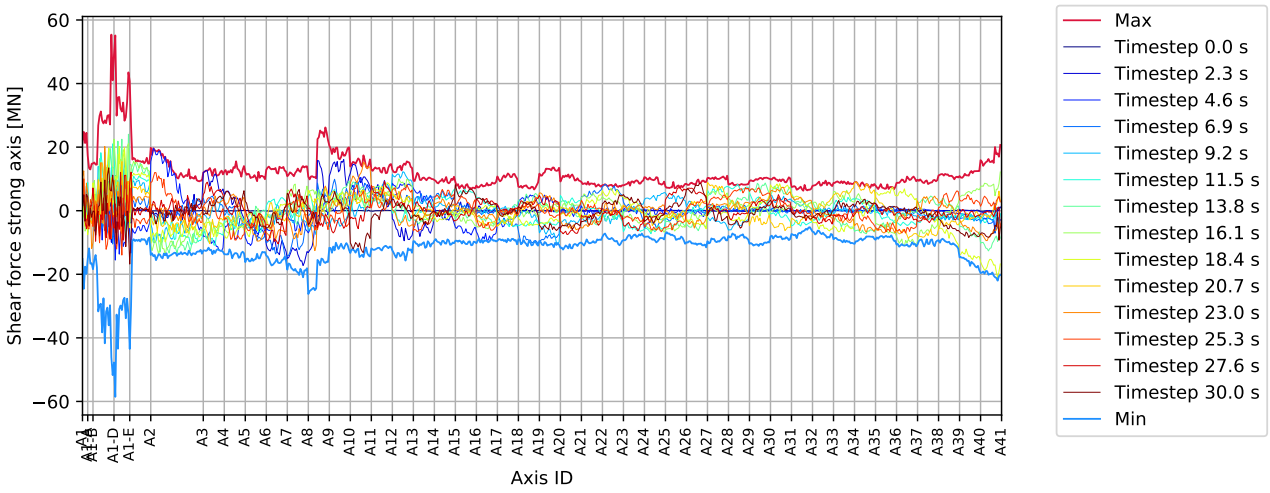

Figure 4.54: DH A8-A9 0deg - bridgegirder : Shear force strong axis [MN]

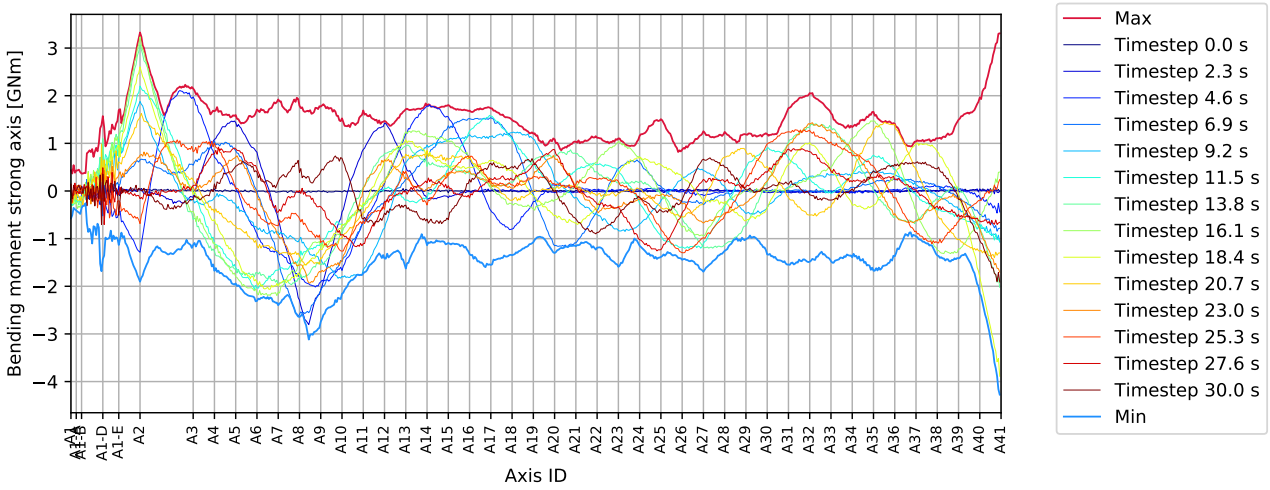

Figure 4.55: DH A8-A9 0deg - bridgegirder : Bending moment strong axis [GNm]

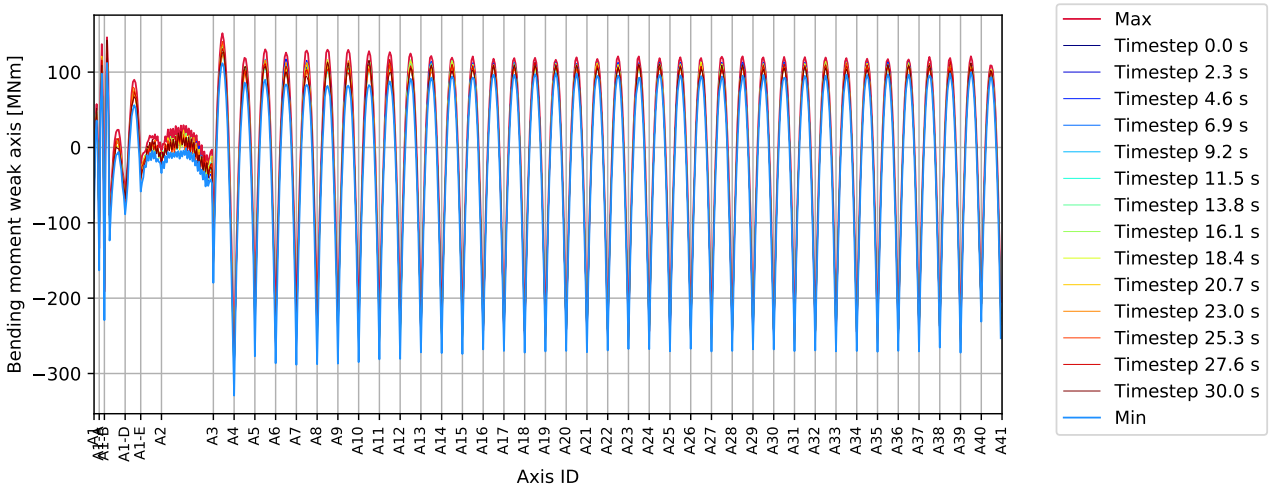

Figure 4.56: DH A8-A9 0deg - bridgegirder : Bending moment weak axis [MNm]

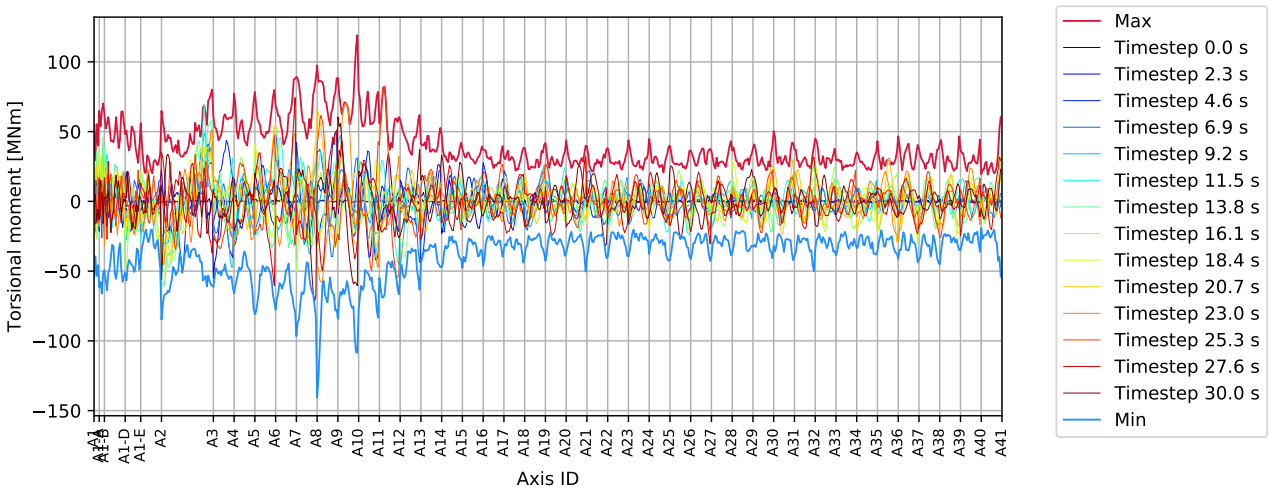

Figure 4.57: DH A8-A9 0deg - bridgegirder : Torsional moment [MNm]

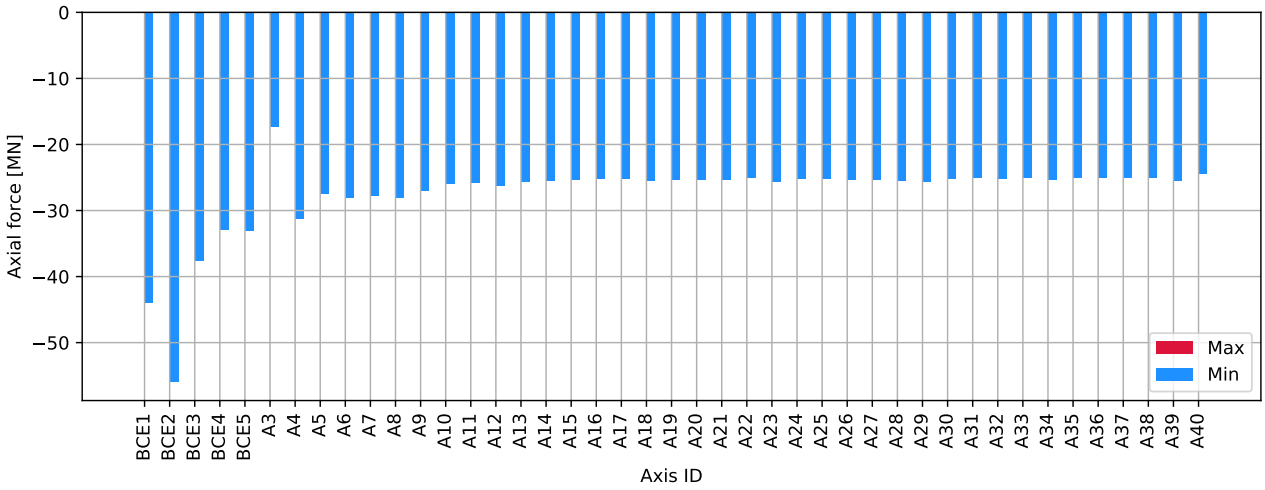

Figure 4.58: DH A8-A9 0deg - columns bottom : Axial force [MN]

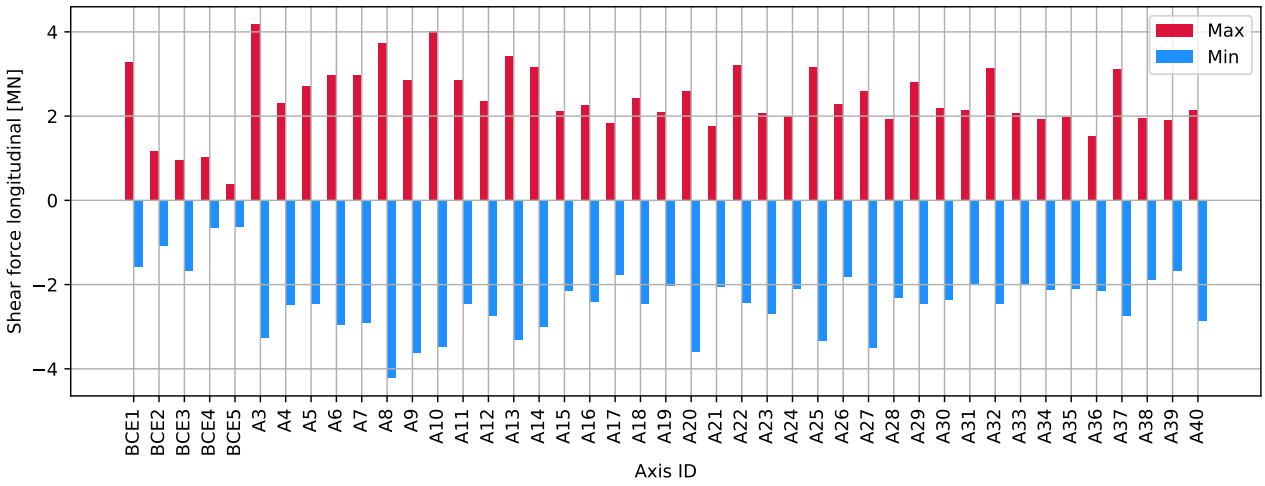

Figure 4.59: DH A8-A9 0deg - columns bottom : Shear force longitudinal [MN]

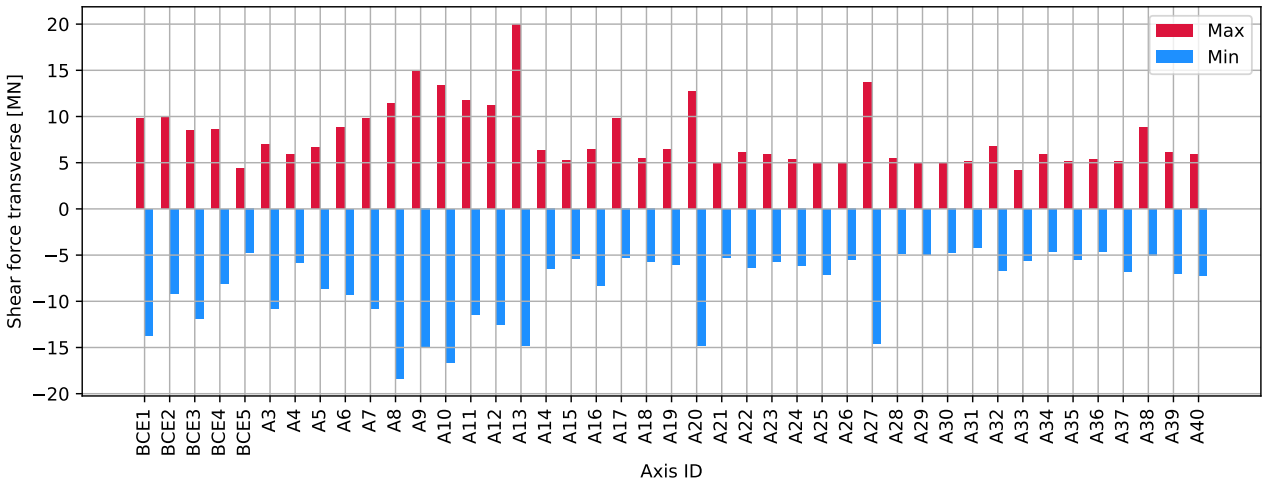

Figure 4.60: DH A8-A9 0deg - columns bottom : Shear force transverse [MN]

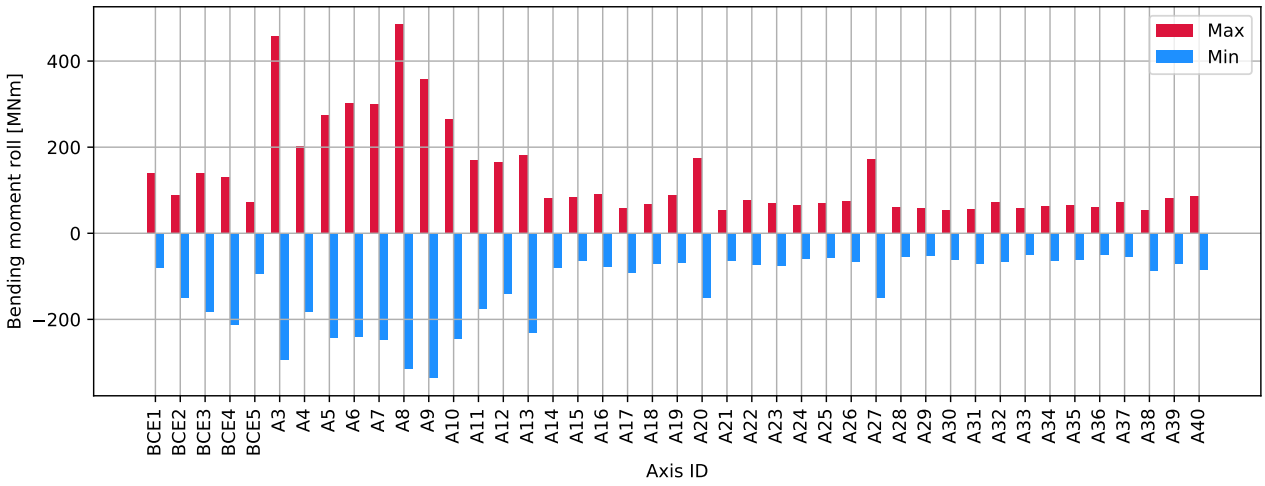

Figure 4.61: DH A8-A9 0deg - columns bottom : Bending moment roll [MNm]

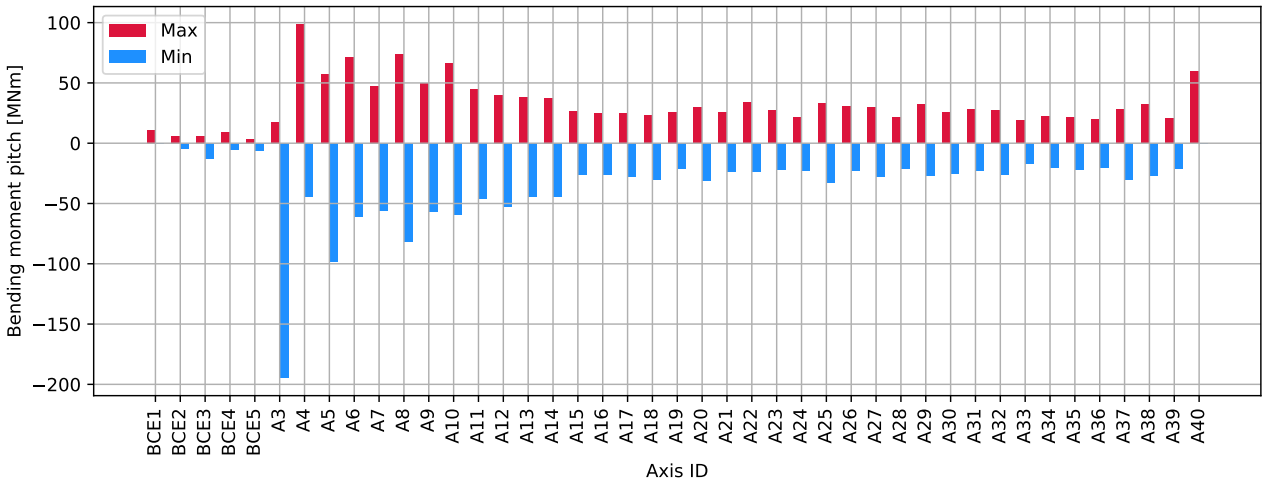

Figure 4.62: DH A8-A9 0deg - columns bottom : Bending moment pitch [MNm]

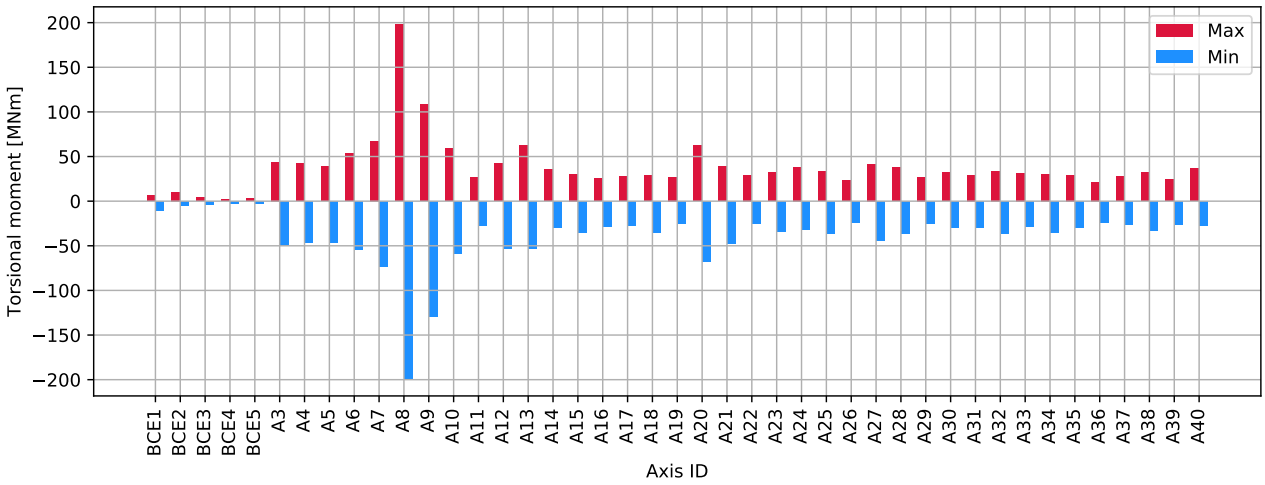

Figure 4.63: DH A8-A9 0deg - columns bottom : Torsional moment [MNm]

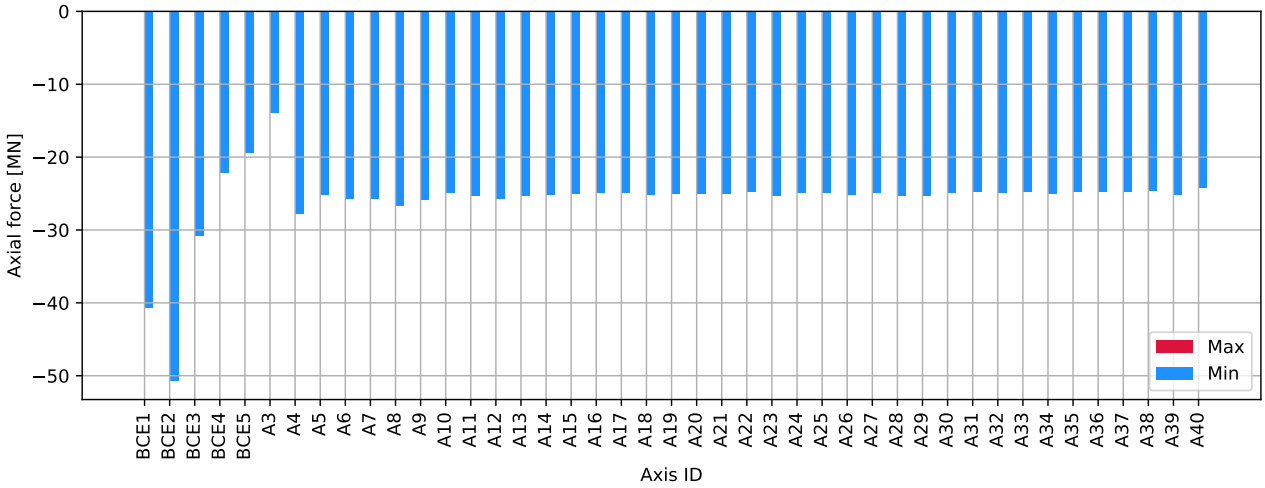

Figure 4.64: DH A8-A9 0deg - columns top : Axial force [MN]

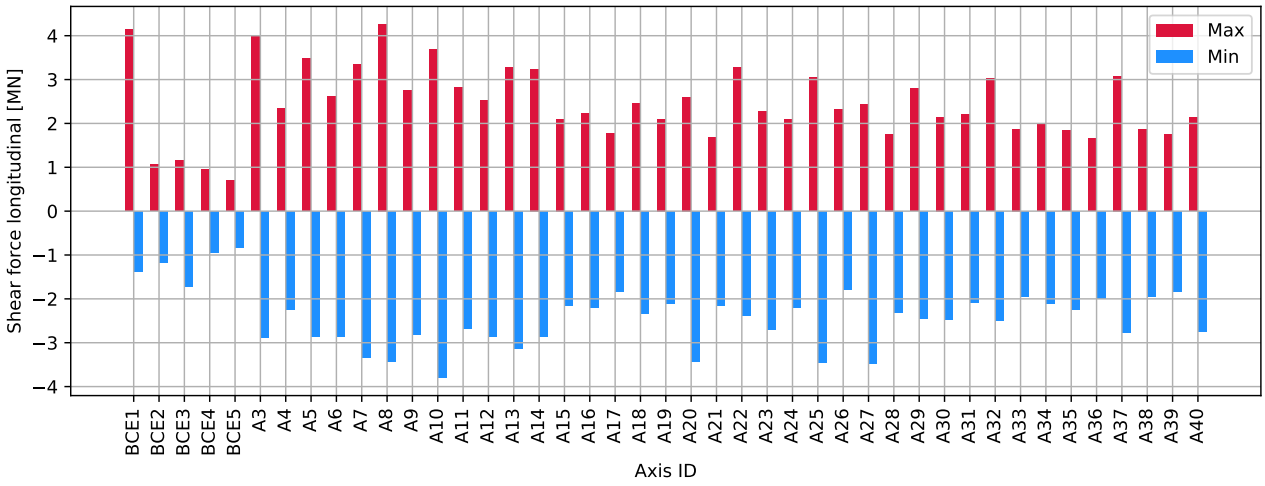

Figure 4.65: DH A8-A9 0deg - columns top : Shear force longitudinal [MN]

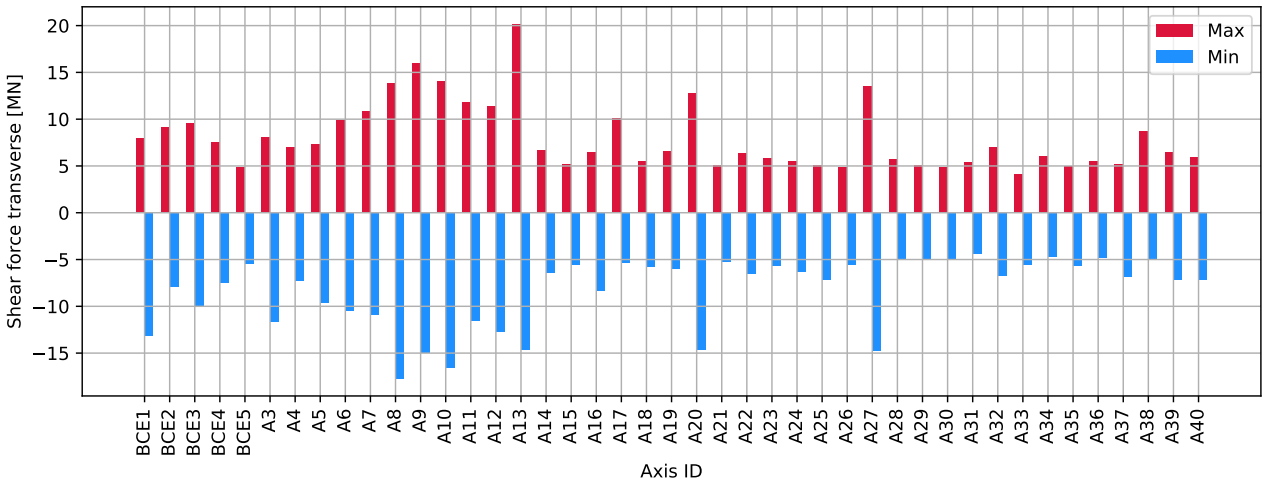

Figure 4.66: DH A8-A9 0deg - columns top : Shear force transverse [MN]

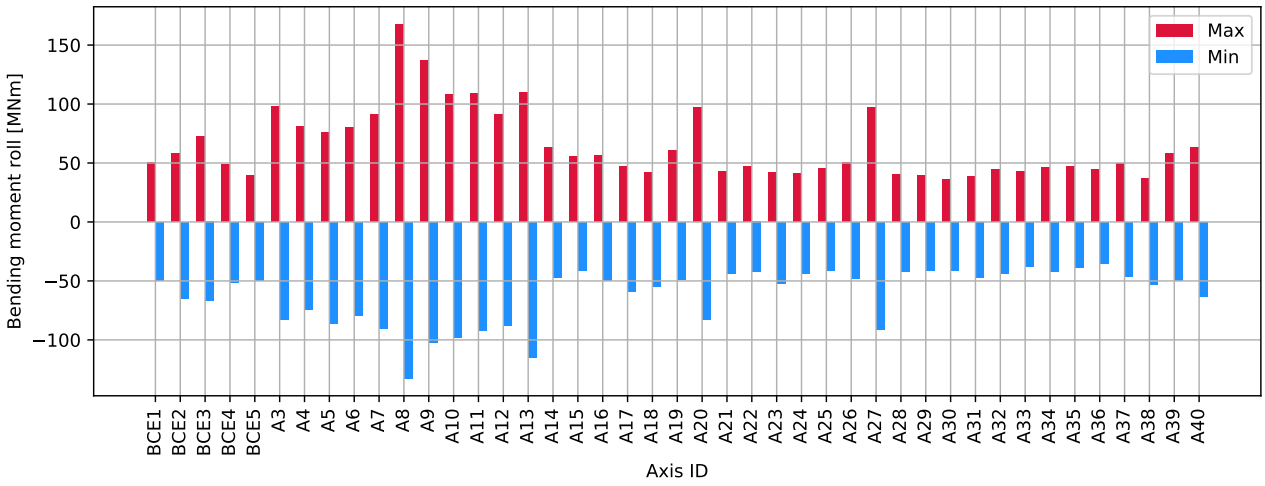

Figure 4.67: DH A8-A9 0deg - columns top : Bending moment roll [MNm]

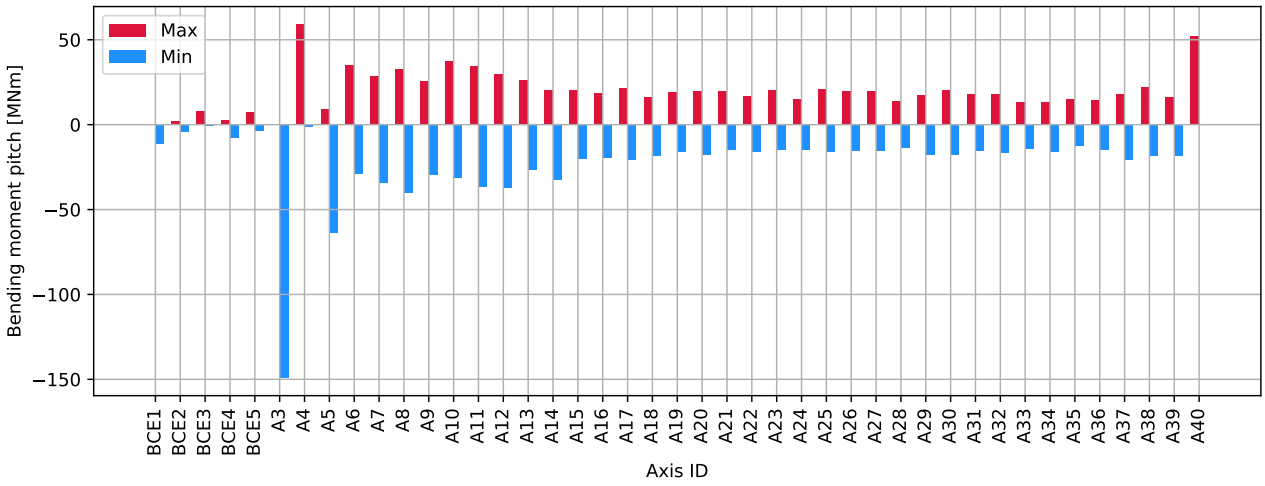

Figure 4.68: DH A8-A9 0deg - columns top : Bending moment pitch [MNm]

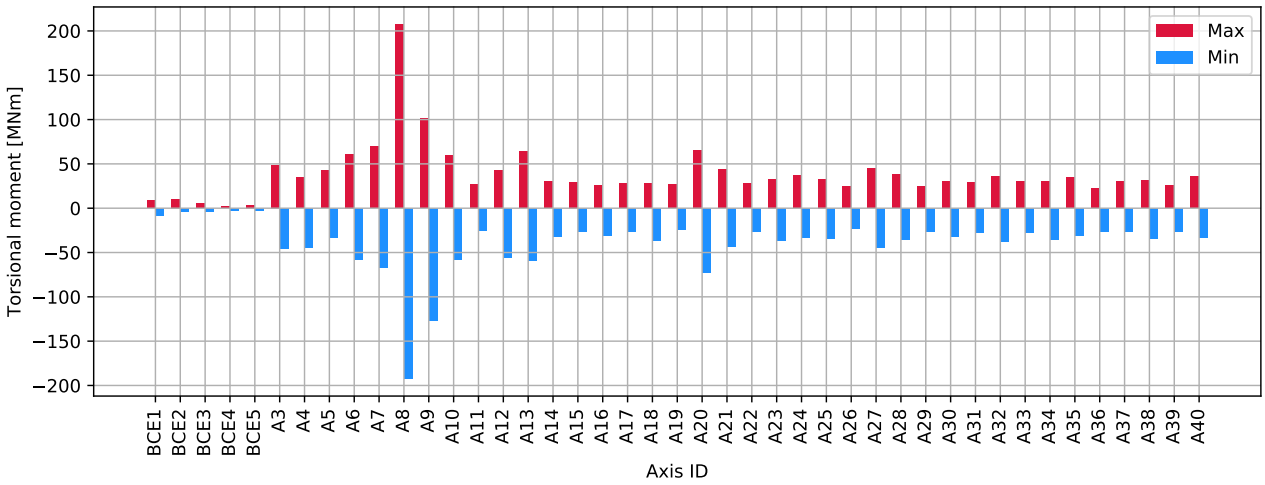

Figure 4.69: DH A8-A9 0deg - columns top : Torsional moment [MNm]

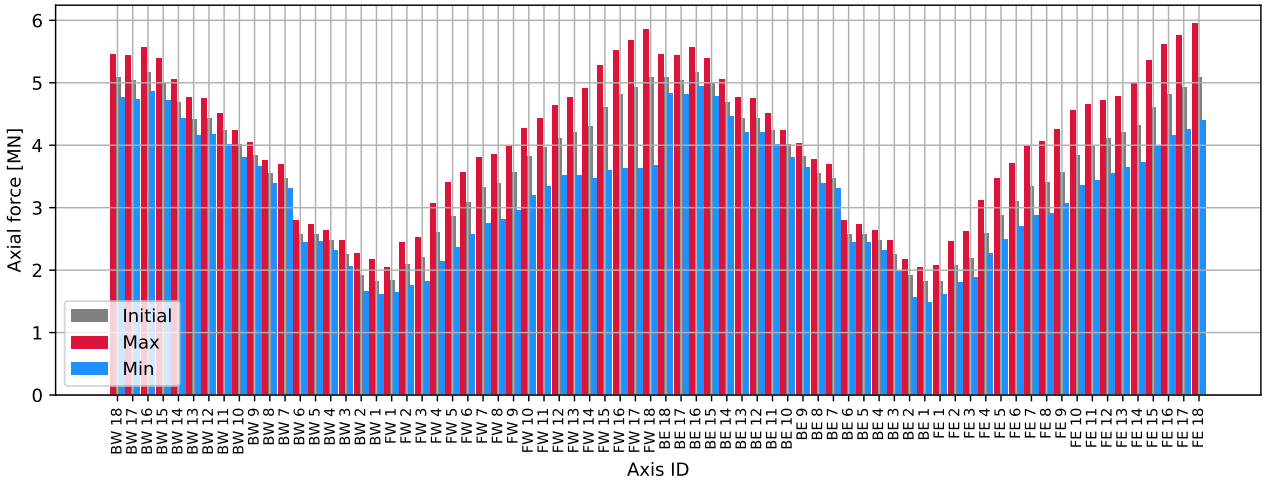

Figure 4.70: DH A8-A9 0deg - cables : Axial force [MN]

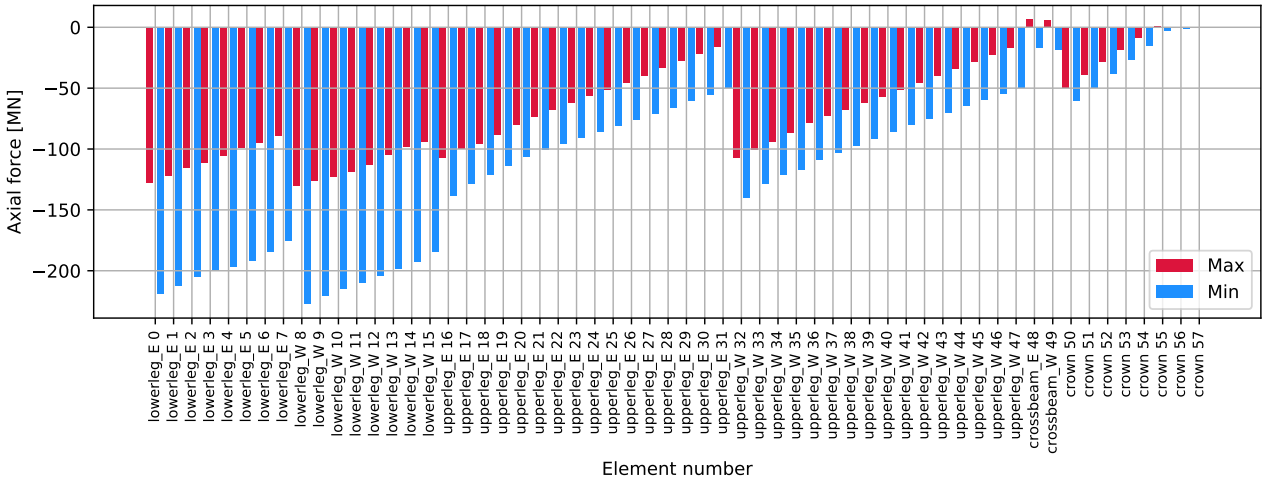

Figure 4.71: DH A8-A9 0deg - tower: Axial force [MN]

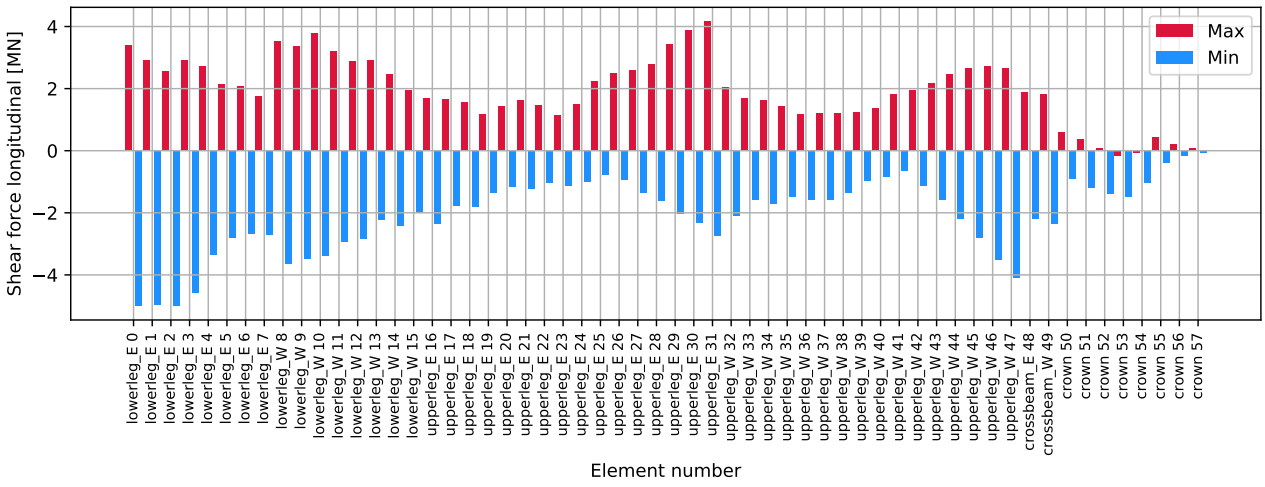

Figure 4.72: DH A8-A9 0deg - tower: Shear force longitudinal [MN]

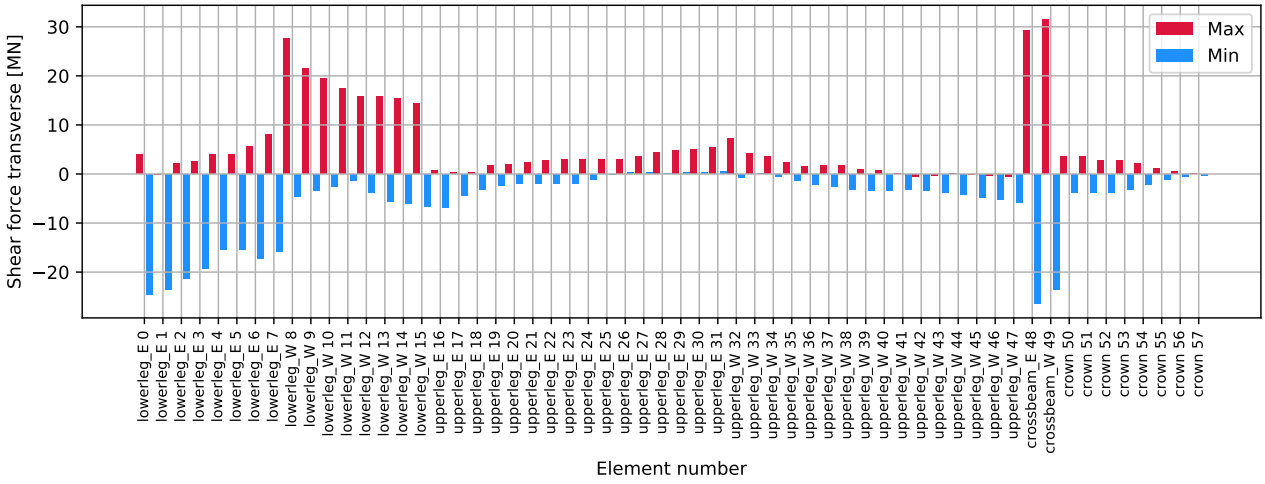

Figure 4.73: DH A8-A9 0deg - tower: Shear force transverse [MN]

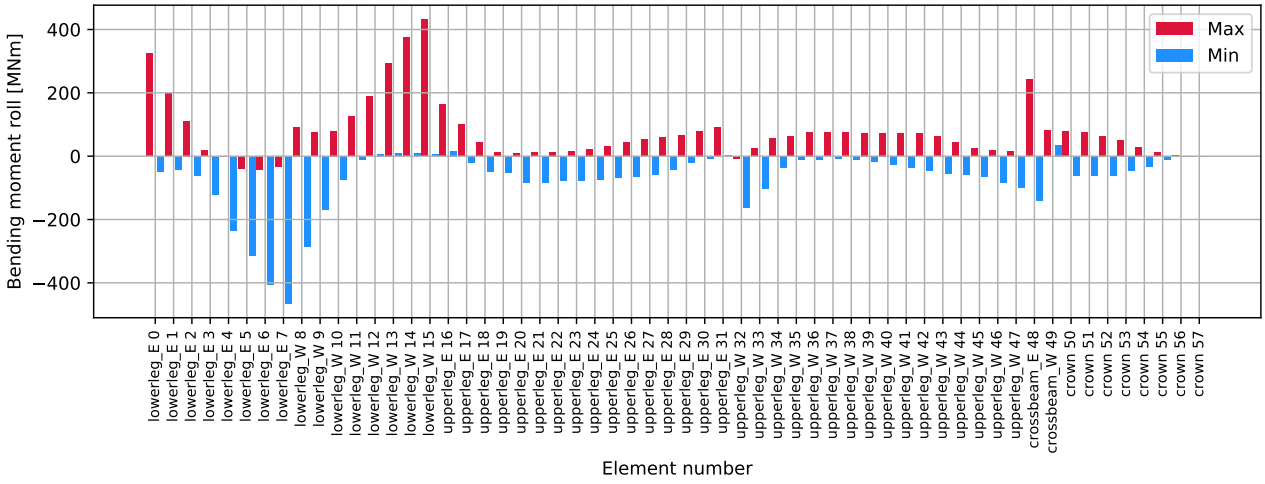

Figure 4.74: DH A8-A9 0deg - tower: Bending moment roll [MNm]

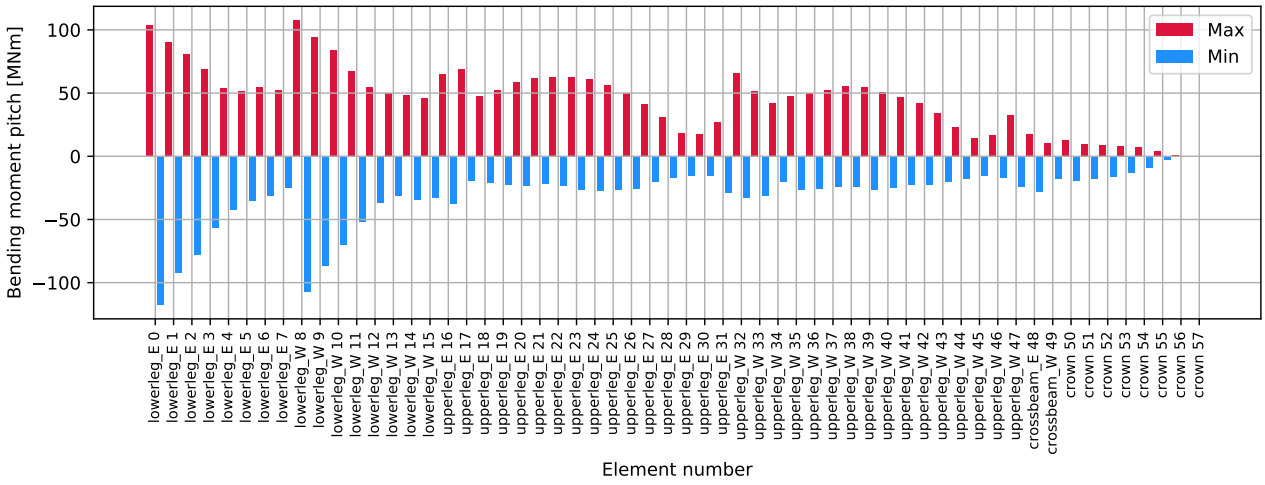

Figure 4.75: DH A8-A9 0deg - tower: Bending moment pitch [MNm]

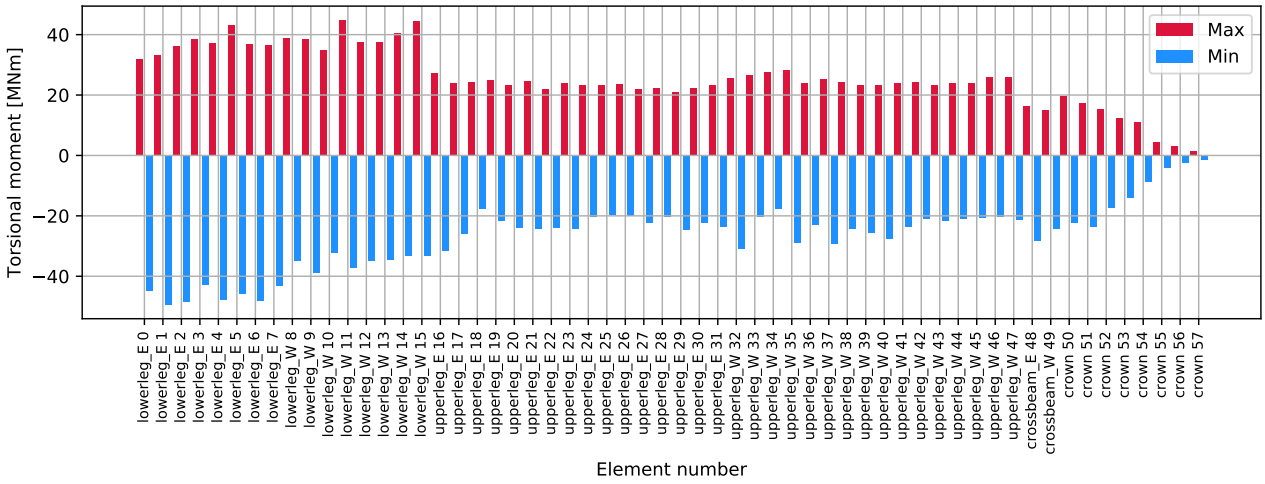

Figure 4.76: DH A8-A9 0deg - tower: Torsional moment [MNm]

4.2.3 Time series

Note : Time series are filtered using a Saviotzky-Golay filter for increased readability of the time history plots. Hence, maximum values that occur due to a rapid vibration are not shown in the plots. For maximum values, refer to the tabulated data.
All elements are numbered from South to North, bottom to top

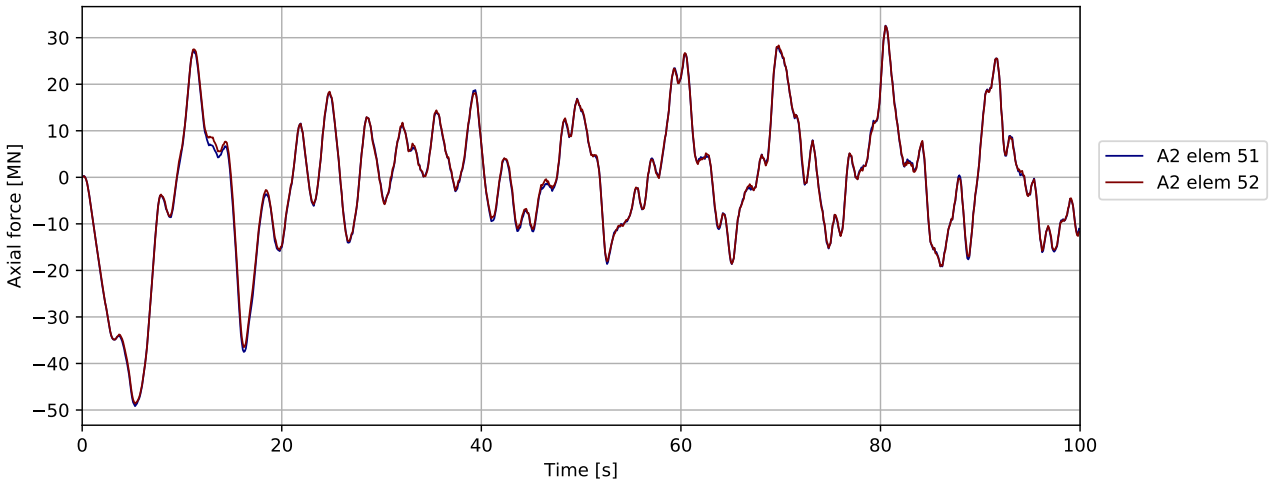

Figure 4.77: DH A8-A9 0deg - bridgegirder @ pylon: Axial force [MN]

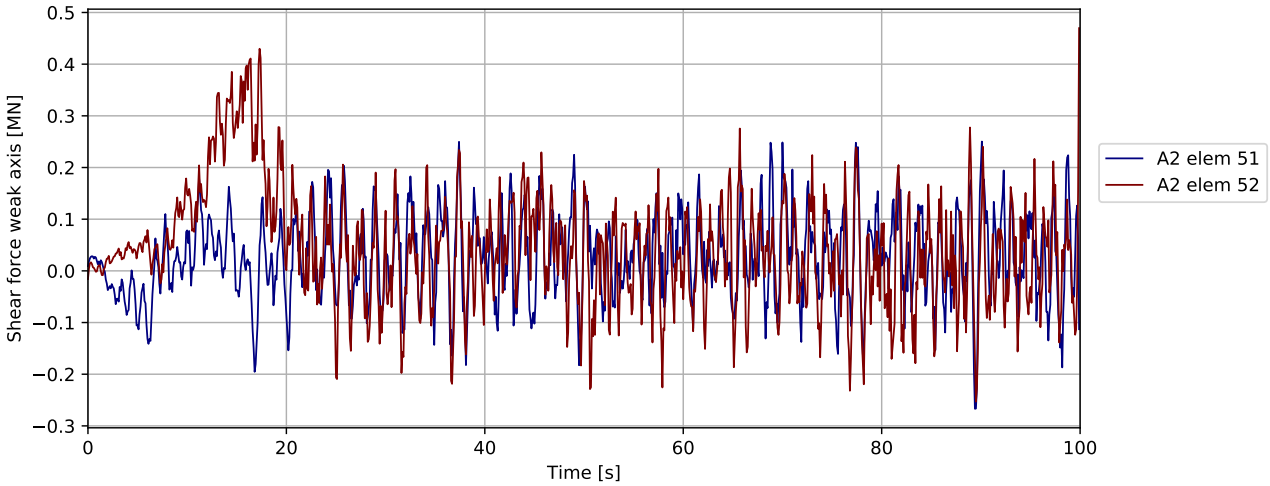

Figure 4.78: DH A8-A9 0deg - bridgegirder @ pylon: Shear force weak axis [MN]

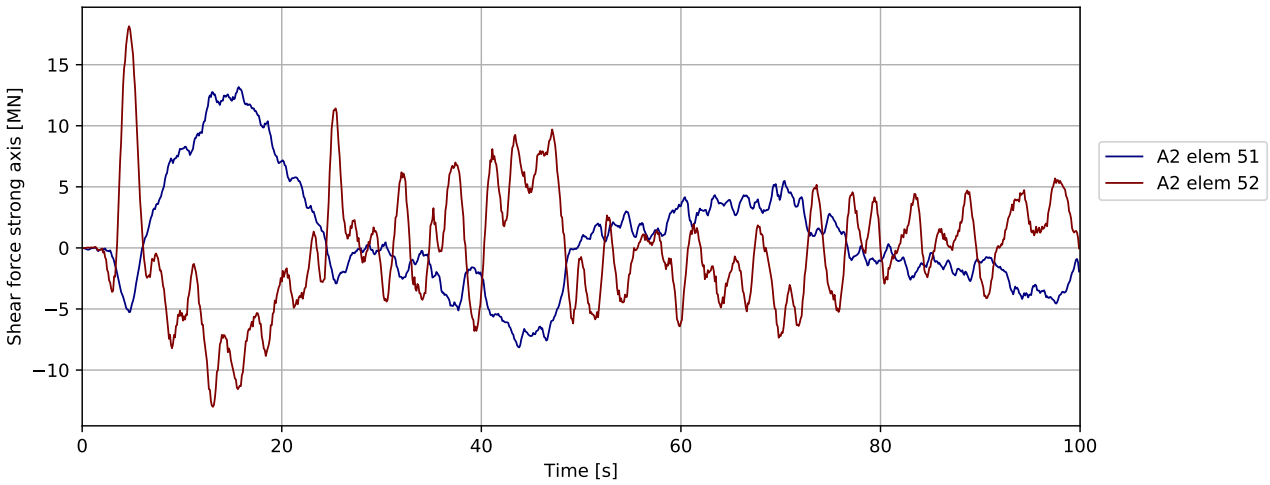

Figure 4.79: DH A8-A9 0deg - bridgegirder @ pylon: Shear force strong axis [MN]

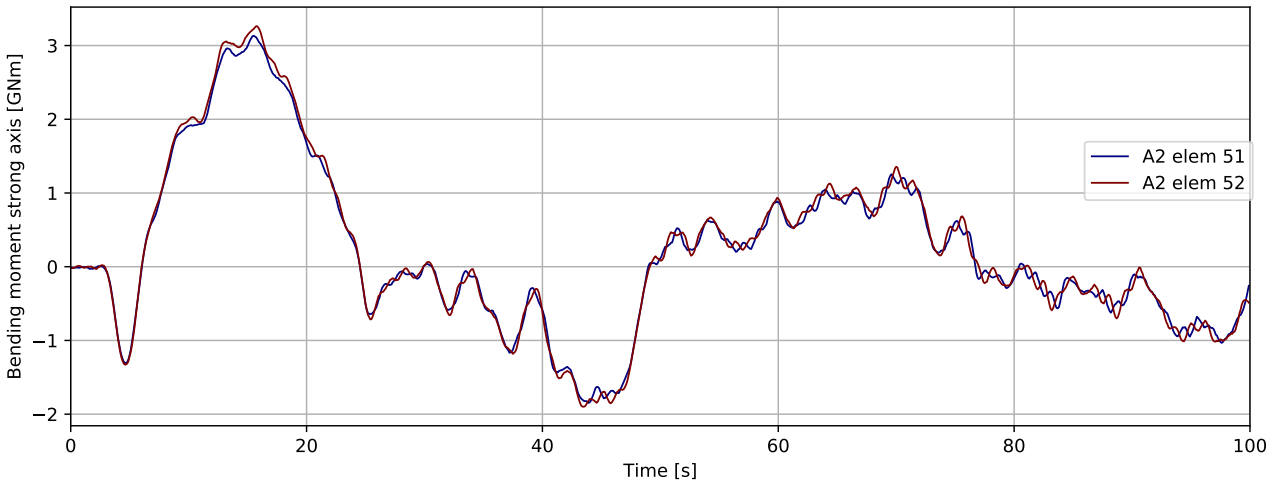

Figure 4.80: DH A8-A9 0deg - bridgegirder @ pylon: Bending moment strong axis [GNm]

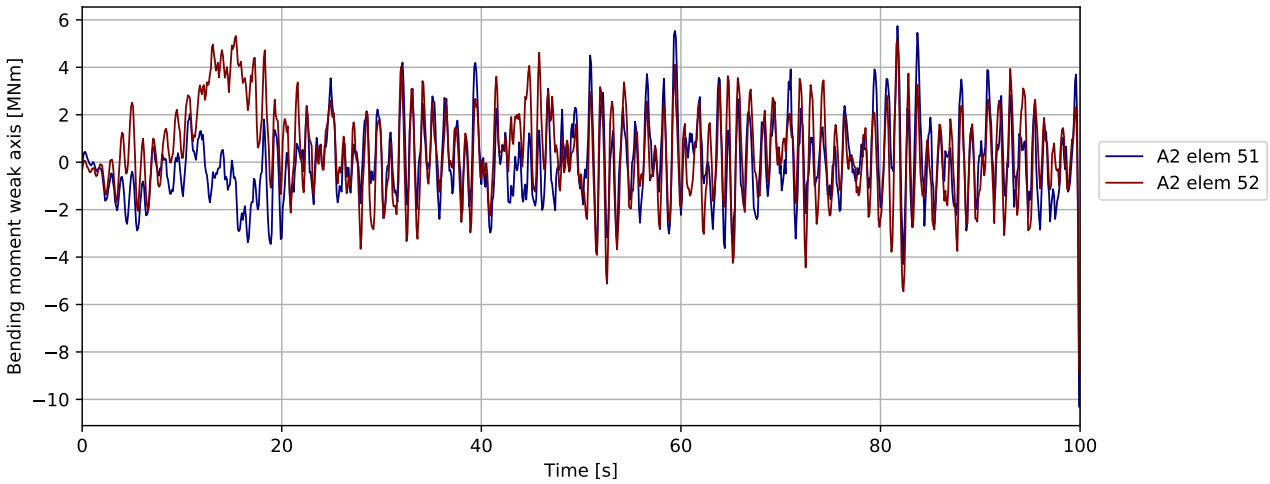

Figure 4.81: DH A8-A9 0deg - bridgegirder @ pylon: Bending moment weak axis [MNm]

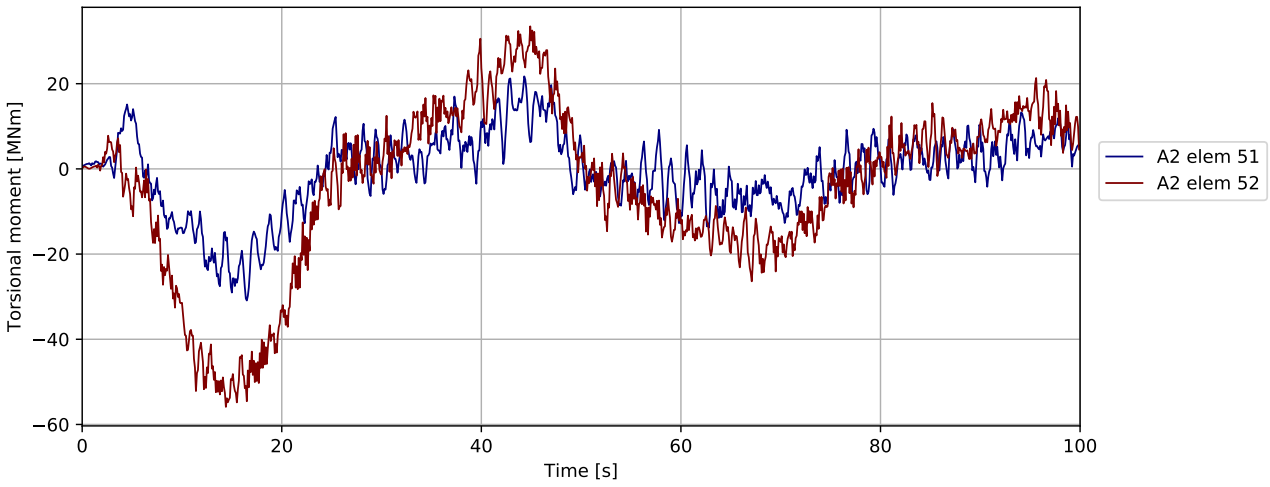

Figure 4.82: DH A8-A9 0deg - bridgegirder @ pylon: Torsional moment [MNm]

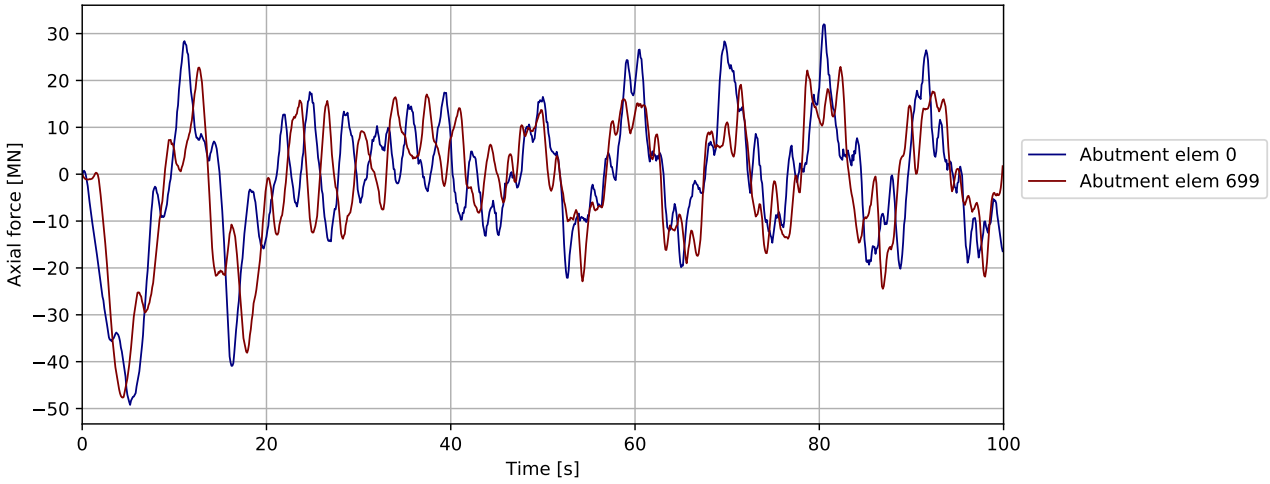

Figure 4.83: DH A8-A9 0deg - bridgegirder @abutments: Axial force [MN]

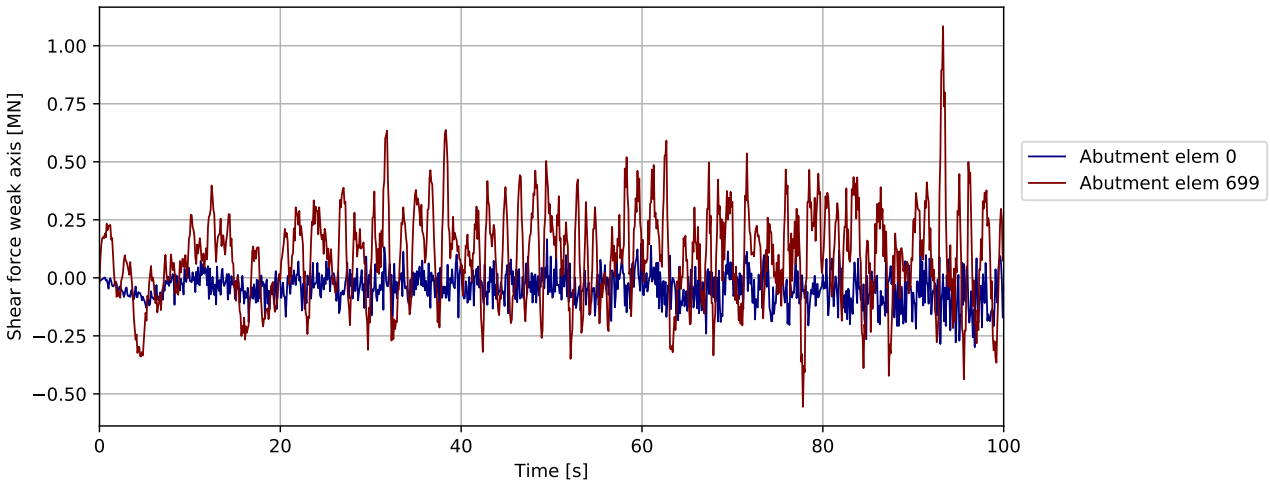

Figure 4.84: DH A8-A9 0deg - bridgegirder @abutments: Shear force weak axis [MN]

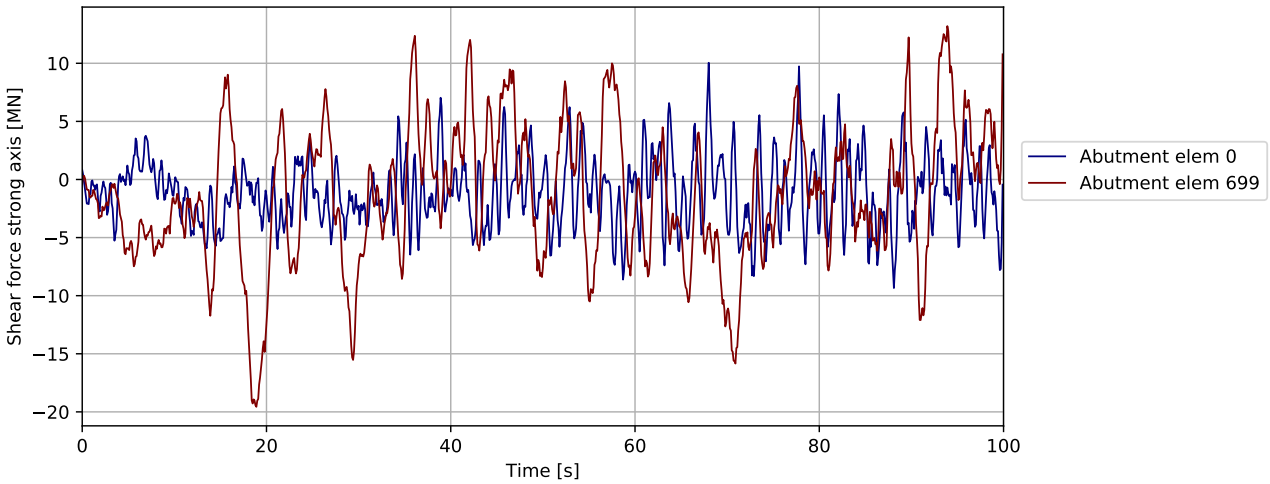

Figure 4.85: DH A8-A9 0deg - bridgegirder @abutments: Shear force strong axis [MN]

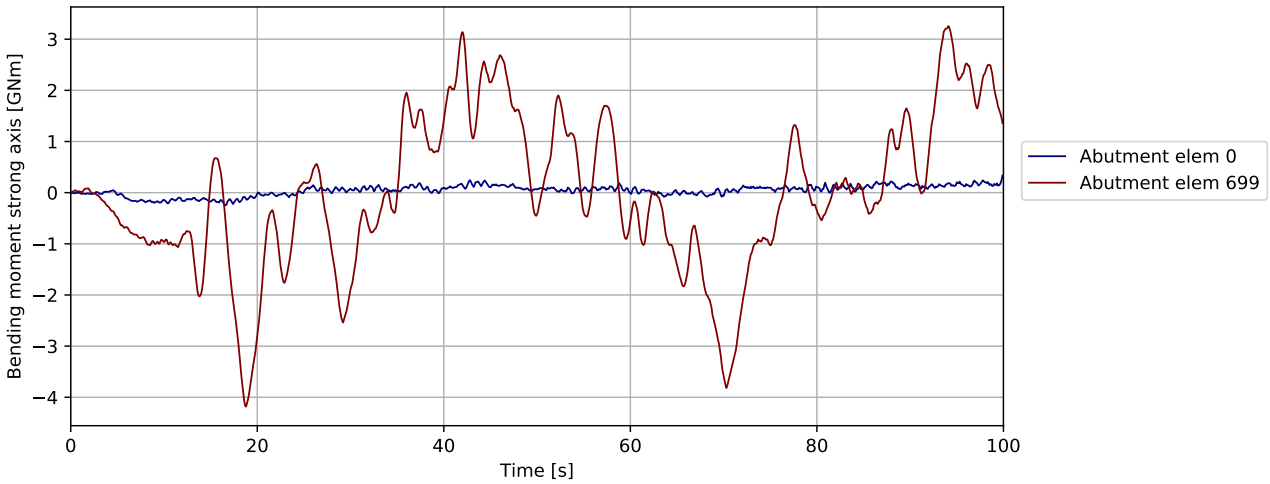

Figure 4.86: DH A8-A9 0deg - bridgegirder @abutments: Bending moment strong axis [GNm]

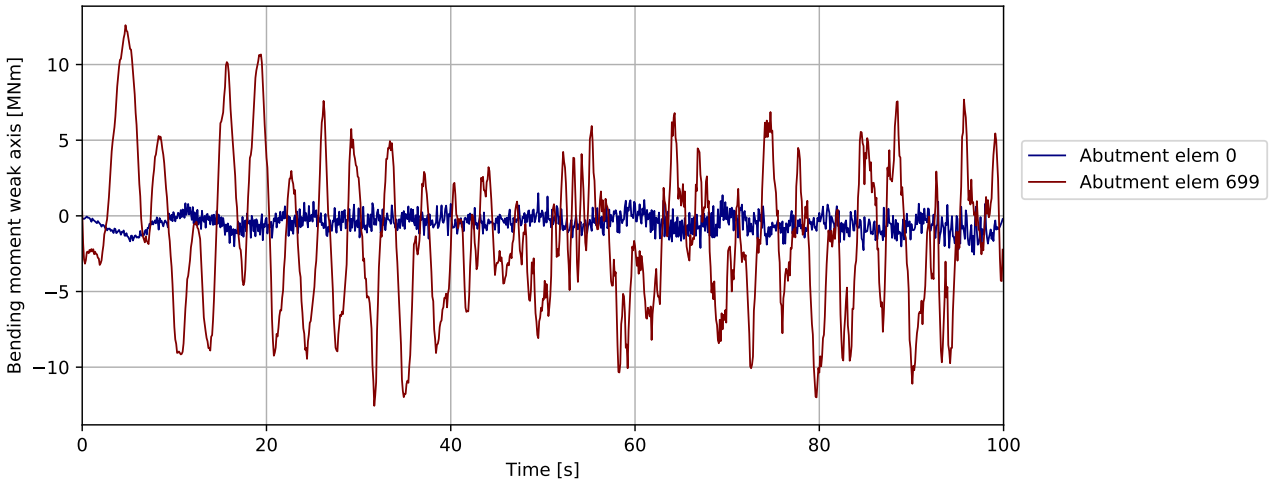

Figure 4.87: DH A8-A9 0deg - bridgegirder @abutments: Bending moment weak axis [MNm]

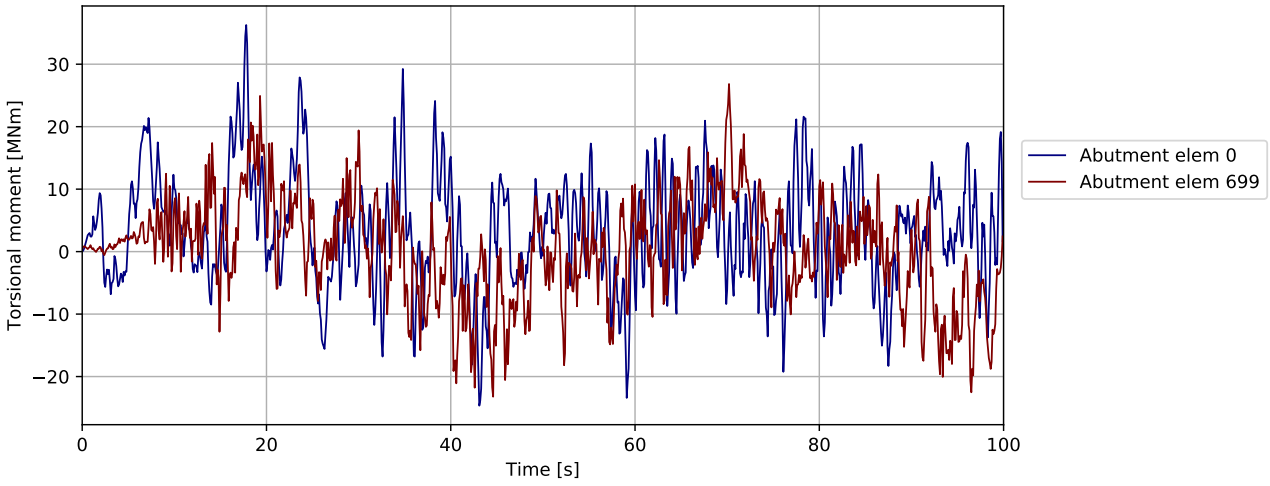

Figure 4.88: DH A8-A9 0deg - bridgegirder @abutments: Torsional moment [MNm]

Note : Compressive spring force is negative

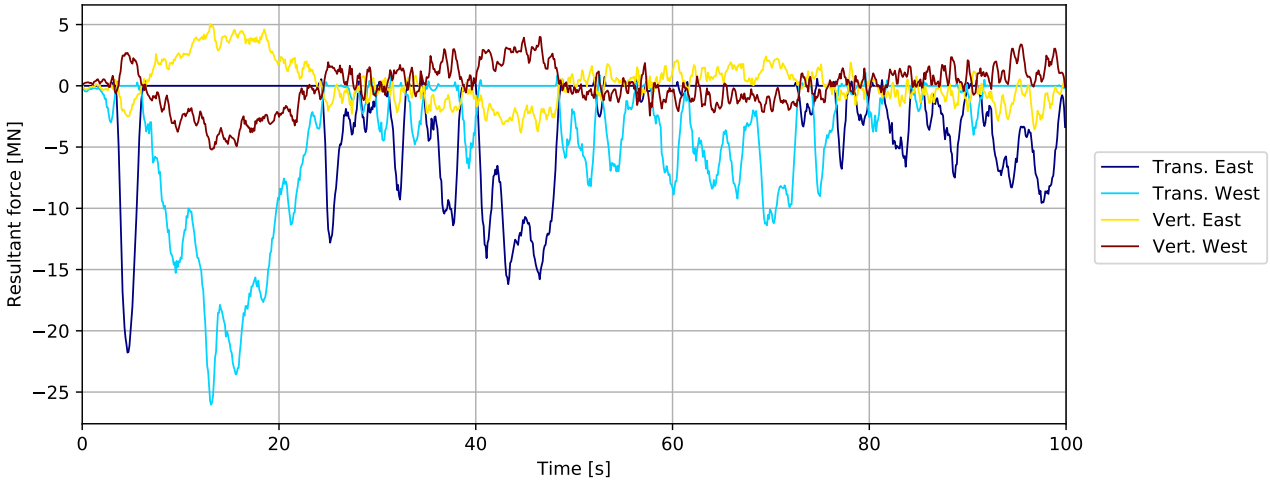

Figure 4.89: DH A8-A9 0deg - bridgegirder supports in tower: Resultant force [MN]

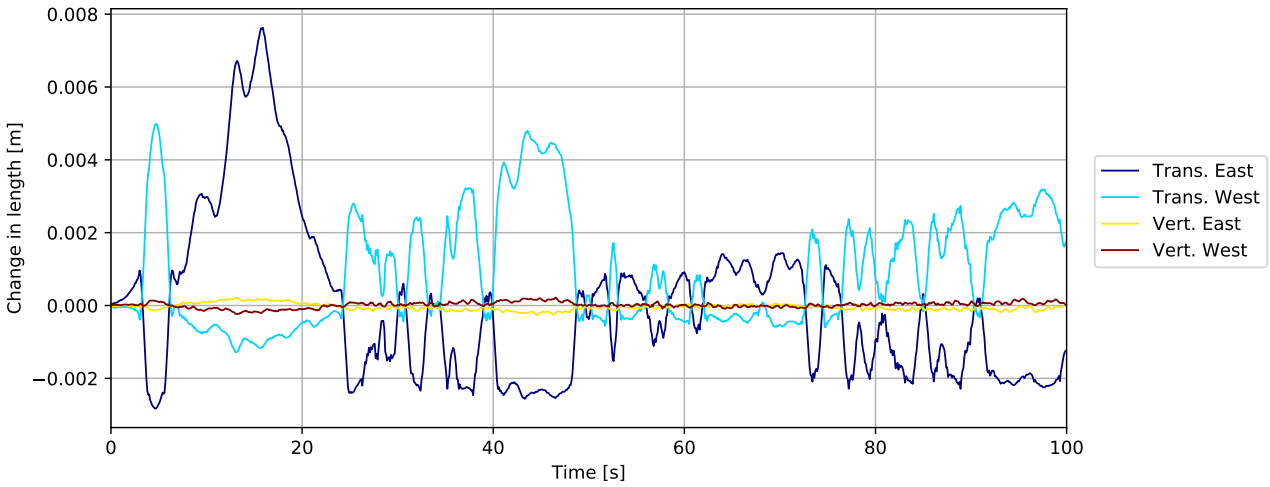

Figure 4.90: DH A8-A9 0deg - bridgegirder supports in tower: Change in length [m]

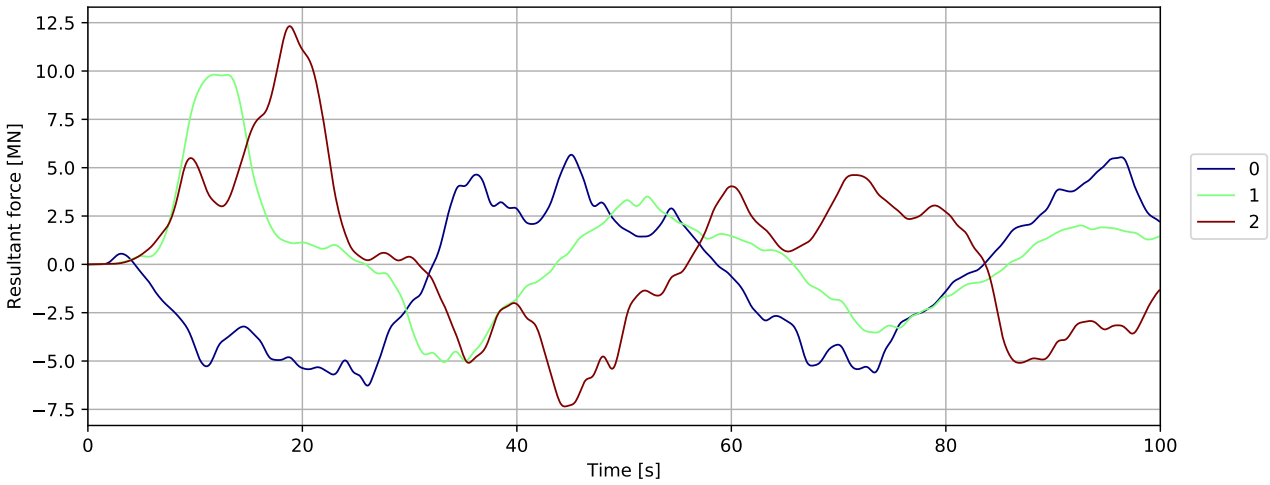

Figure 4.91: Mooring force

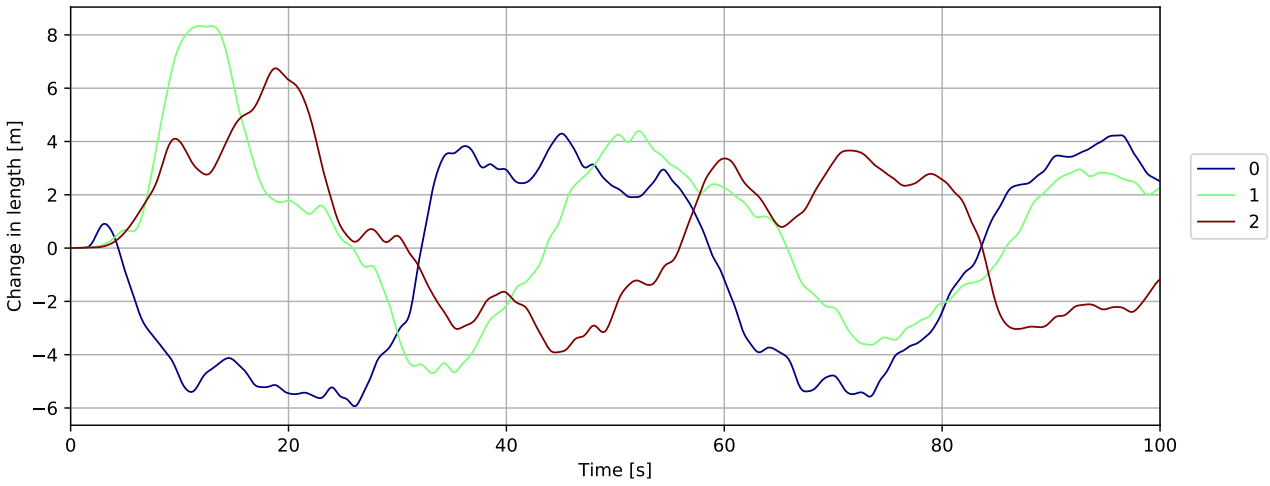

Figure 4.92: Mooring displacement

4.3 Deck house A13-A14 0deg

4.3.1 Overall response

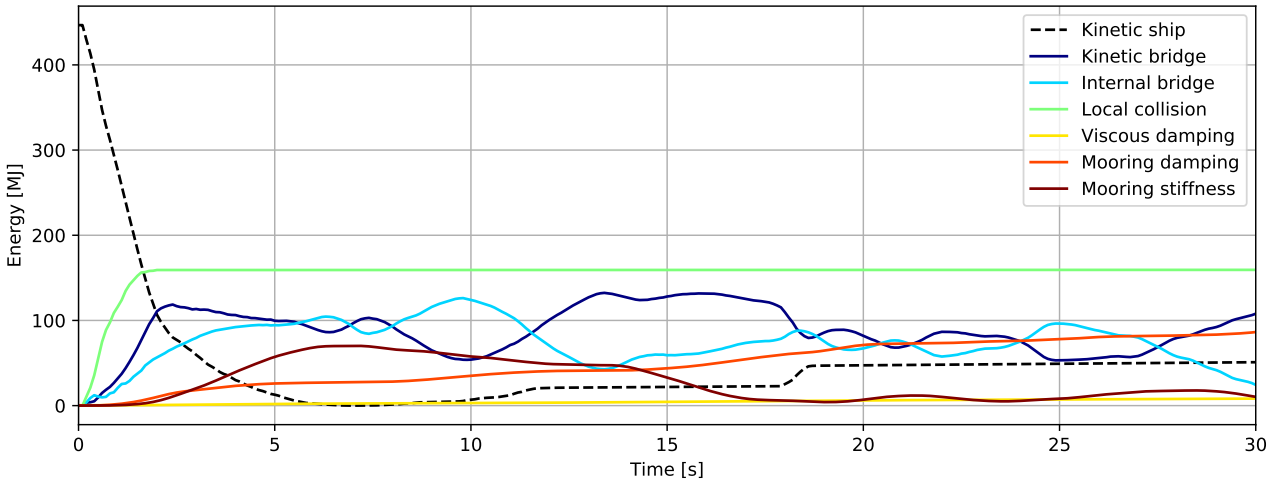

Figure 4.93: Energy [MJ] - initial phase

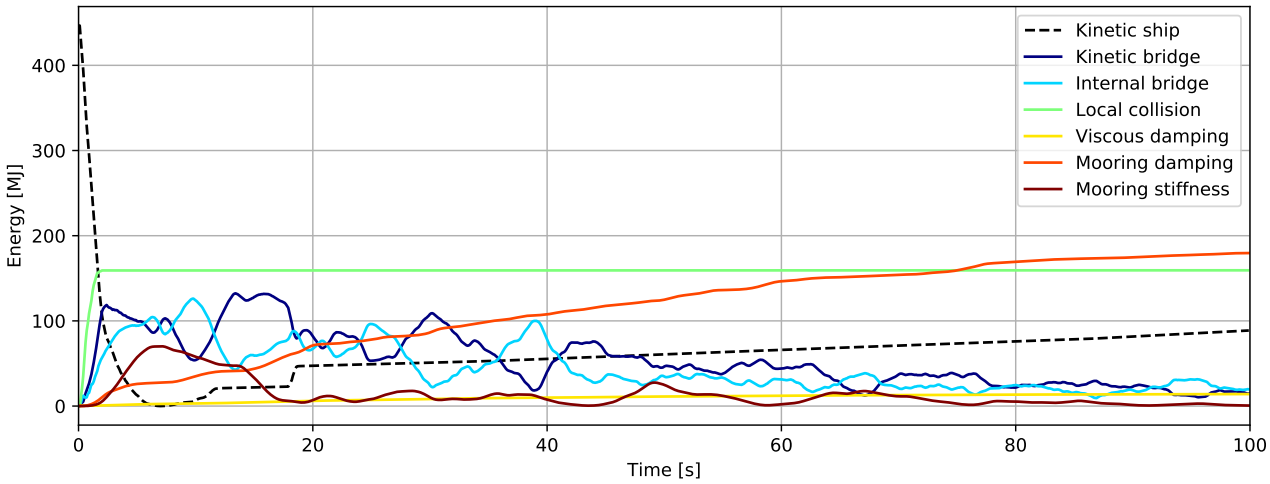

Figure 4.94: Energy [MJ]

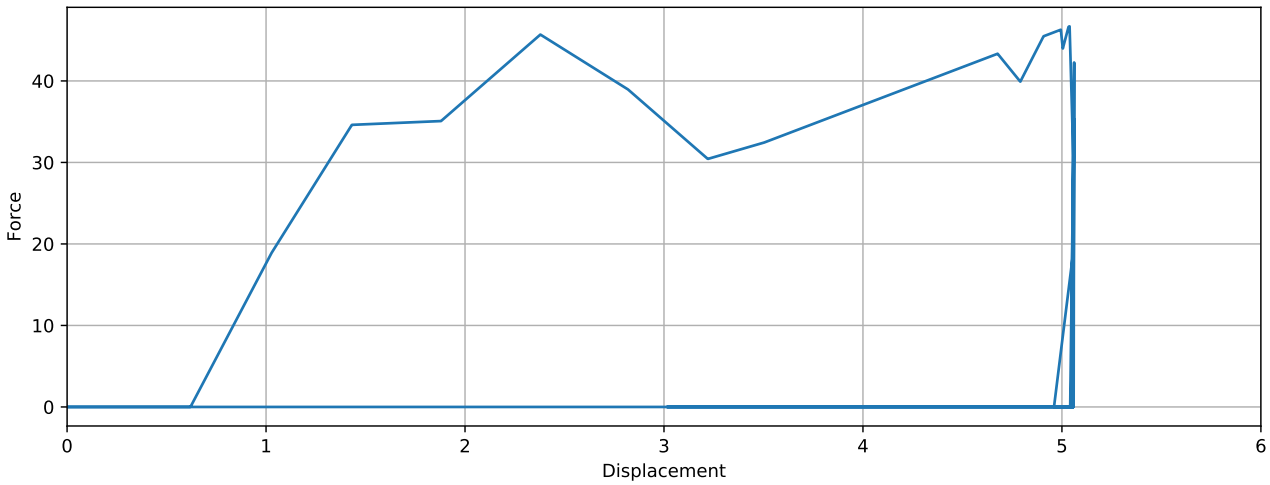

Figure 4.95: Simulated local collision force-displacement

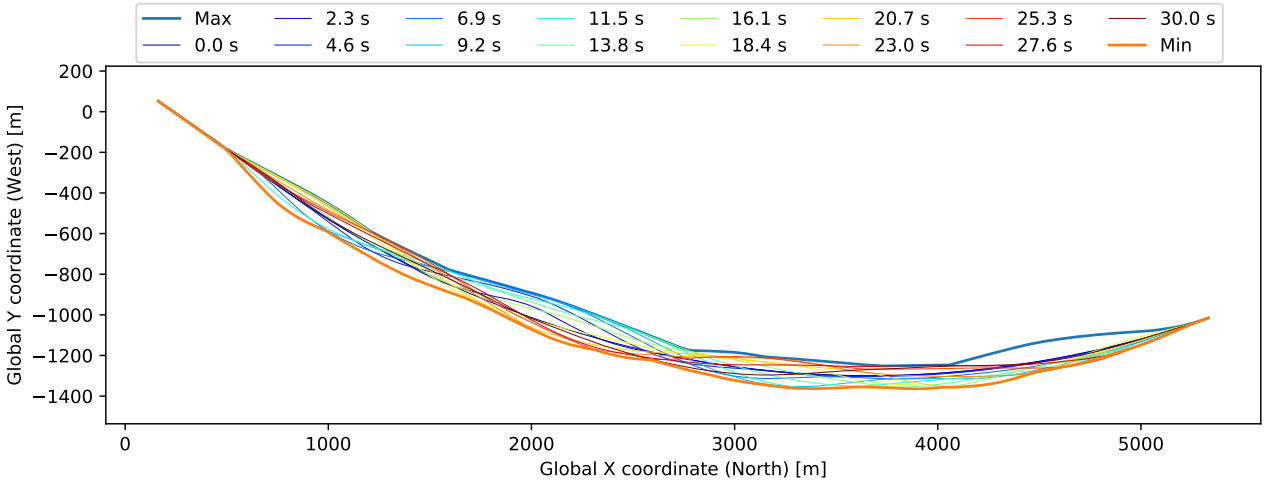

Figure 4.96: Bridgegirder deflection (10x displacment scaling)

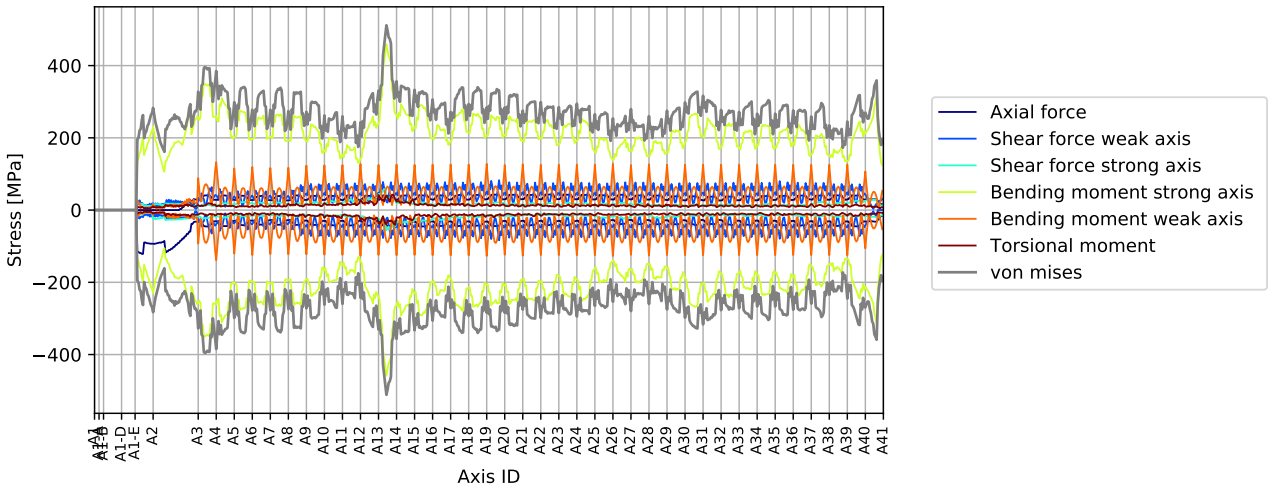

Figure 4.97: Stress envelope from all force components

4.3.2 Envelope plots

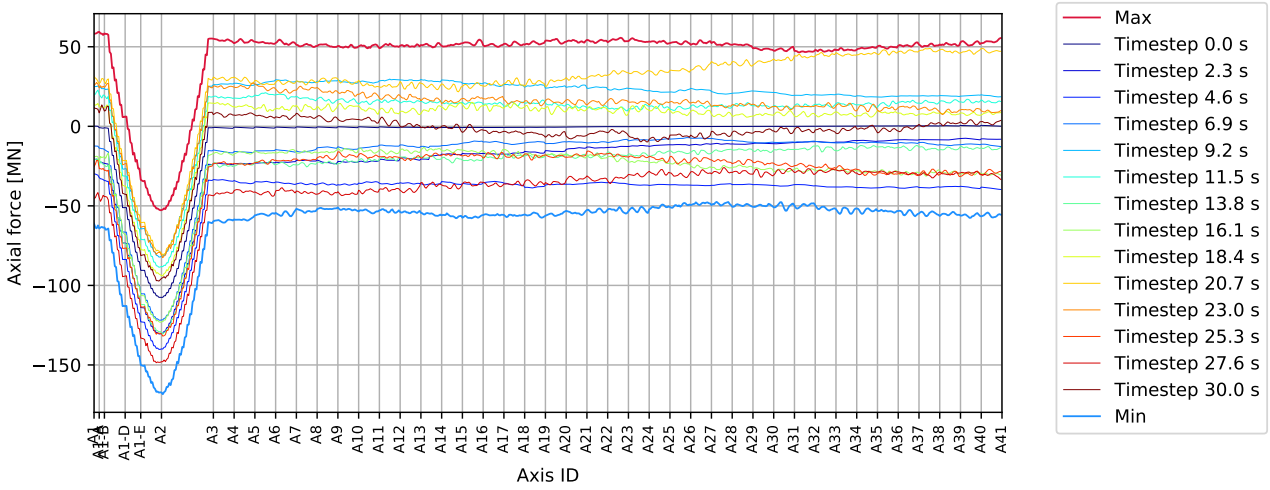

Figure 4.98: DH A13-A14 0deg - bridgegirder : Axial force [MN]

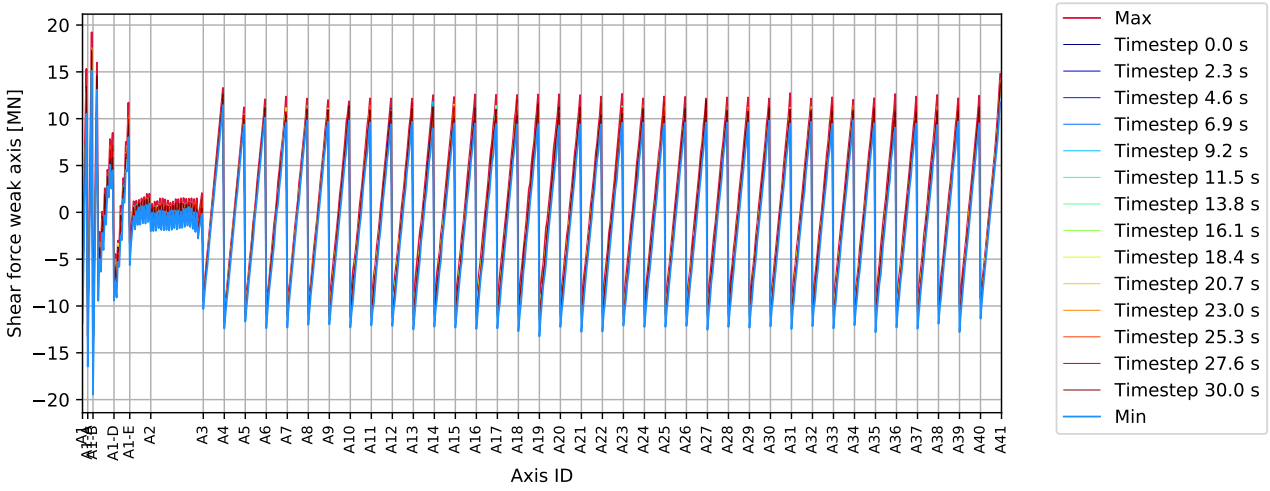

Figure 4.99: DH A13-A14 0deg - bridgegirder : Shear force weak axis [MN]

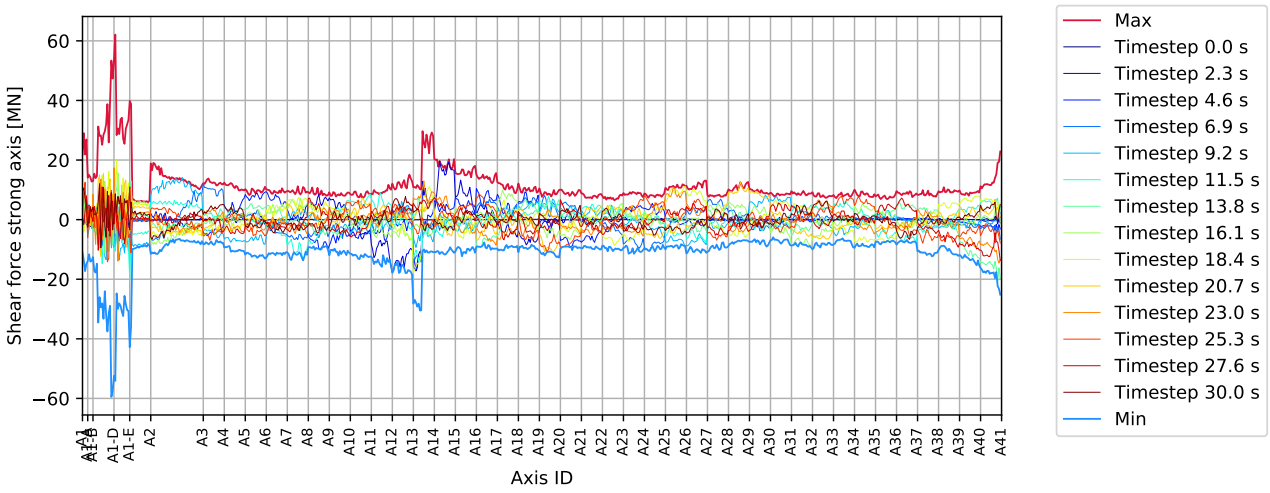

Figure 4.100: DH A13-A14 0deg - bridgegirder : Shear force strong axis [MN]

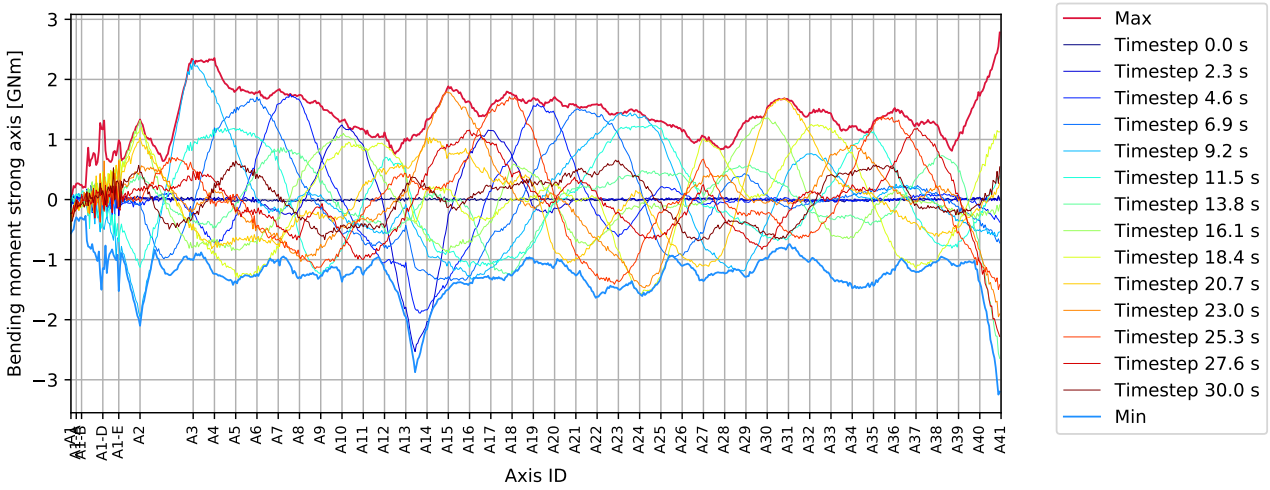

Figure 4.101: DH A13-A14 0deg - bridgegirder : Bending moment strong axis [GNm]

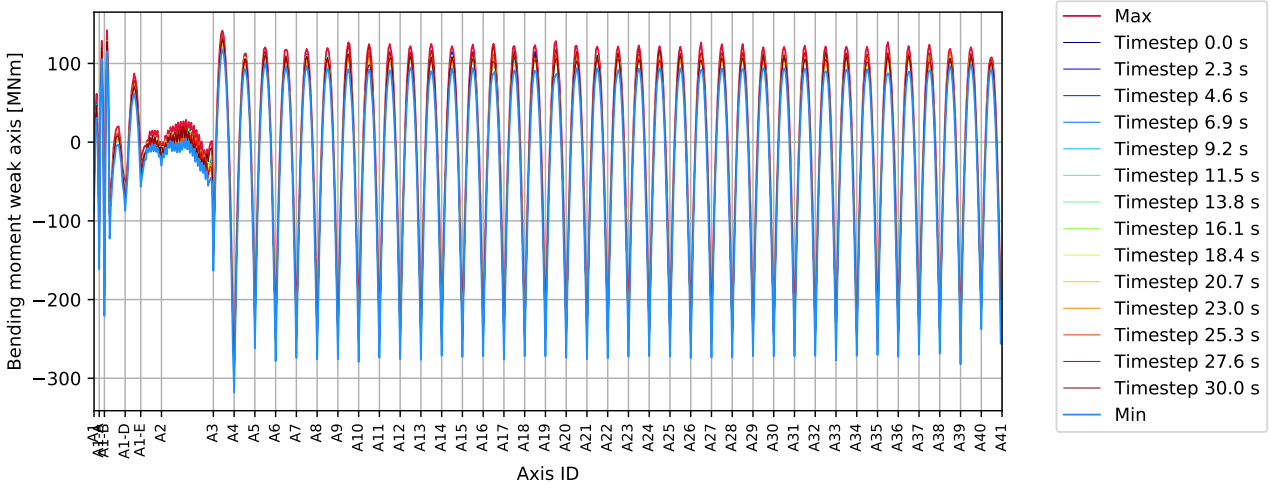

Figure 4.102: DH A13-A14 0deg - bridgegirder : Bending moment weak axis [MNm]

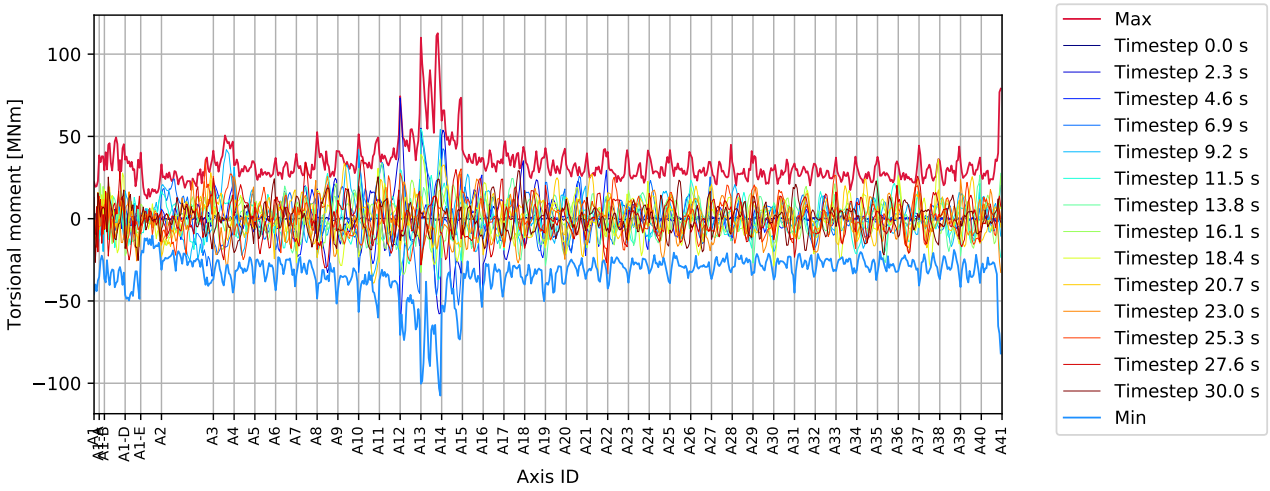

Figure 4.103: DH A13-A14 0deg - bridgegirder : Torsional moment [MNm]

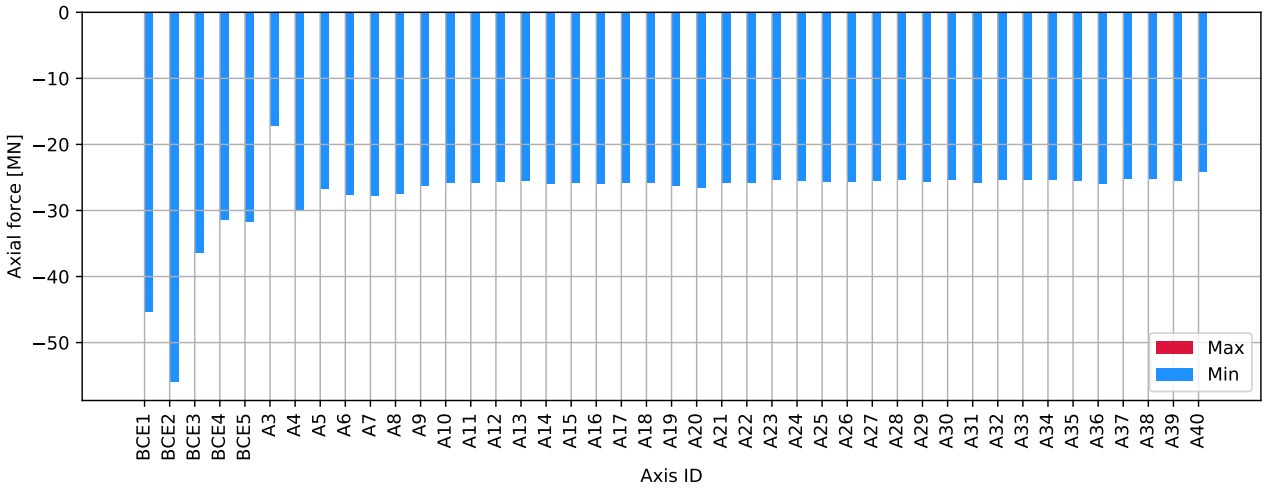

Figure 4.104: DH A13-A14 0deg - columns bottom : Axial force [MN]

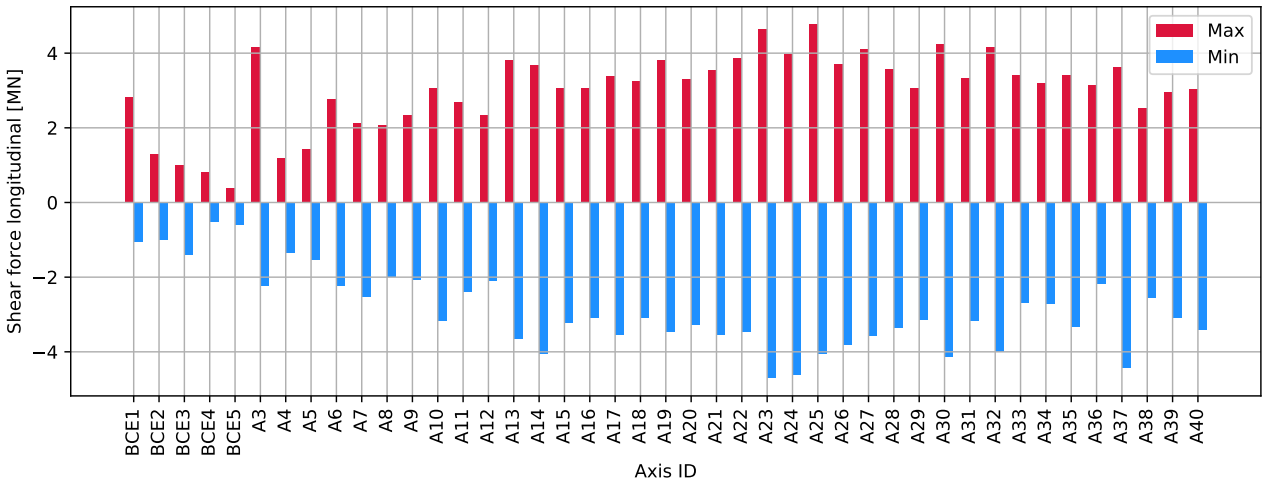

Figure 4.105: DH A13-A14 0deg - columns bottom : Shear force longitudinal [MN]

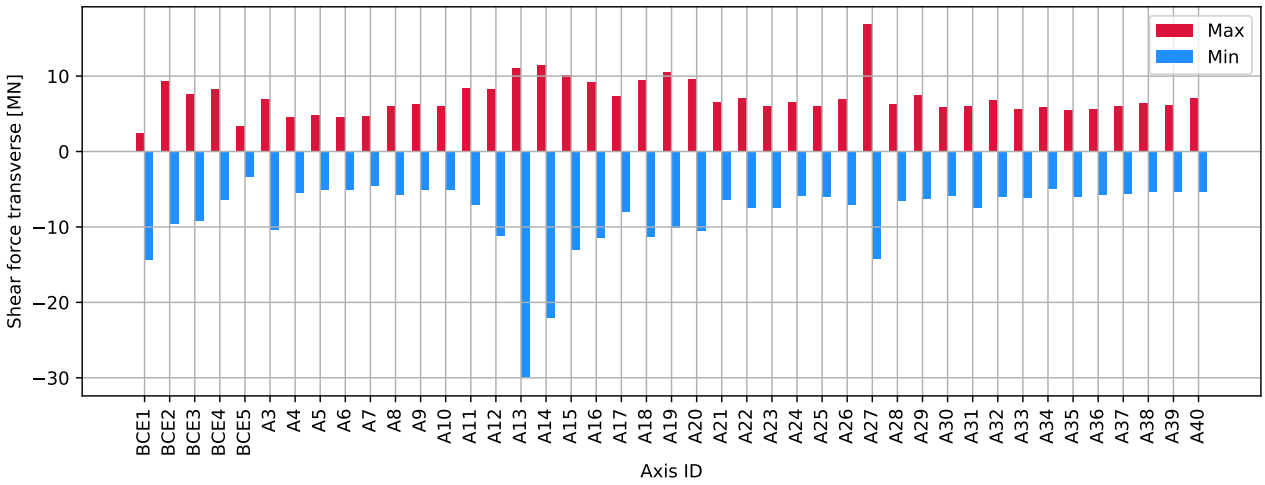

Figure 4.106: DH A13-A14 0deg - columns bottom : Shear force transverse [MN]

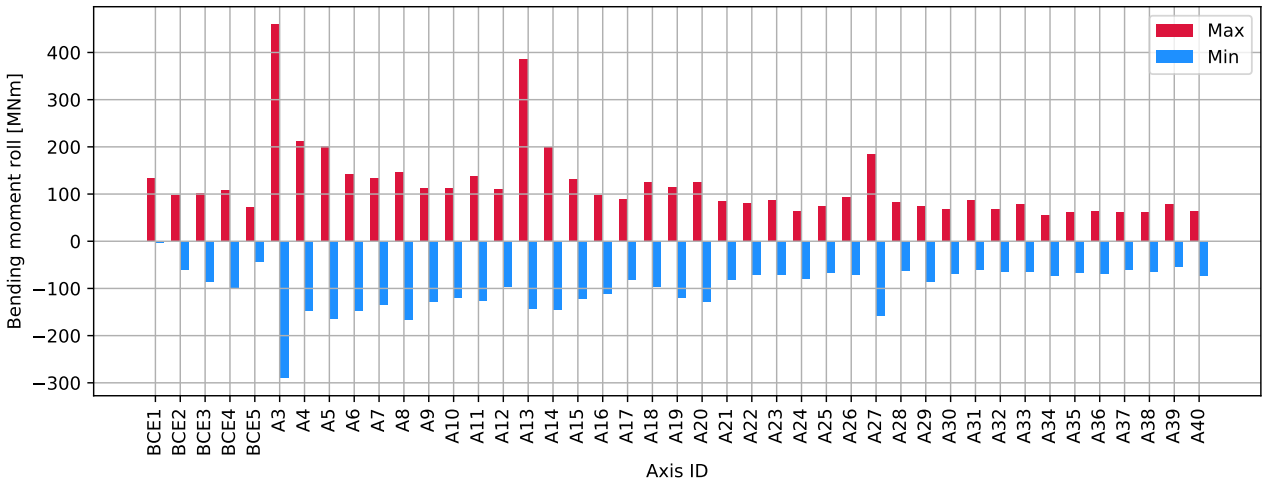

Figure 4.107: DH A13-A14 0deg - columns bottom : Bending moment roll [MNm]

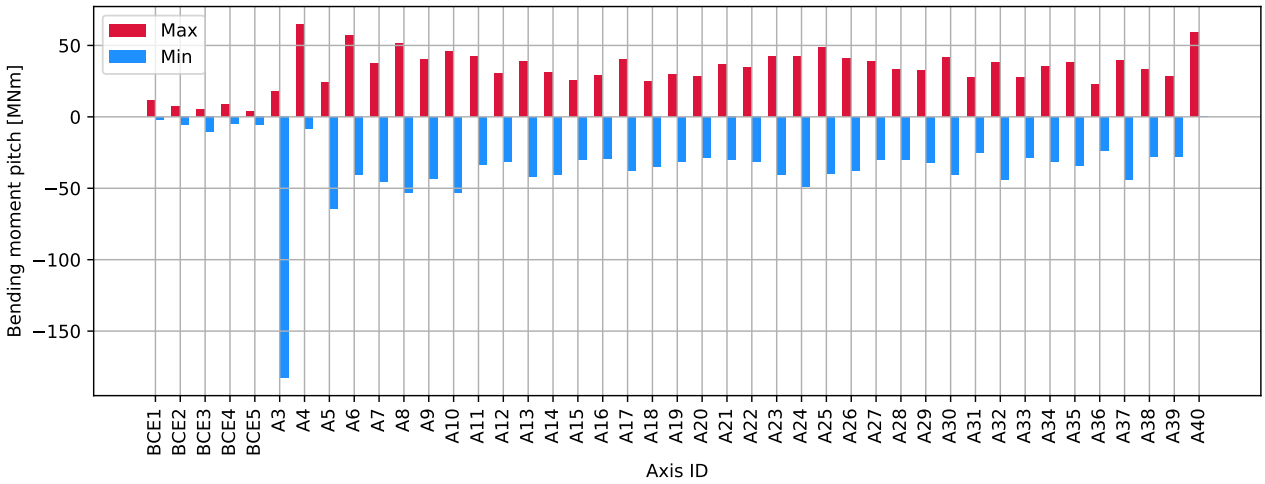

Figure 4.108: DH A13-A14 0deg - columns bottom : Bending moment pitch [MNm]

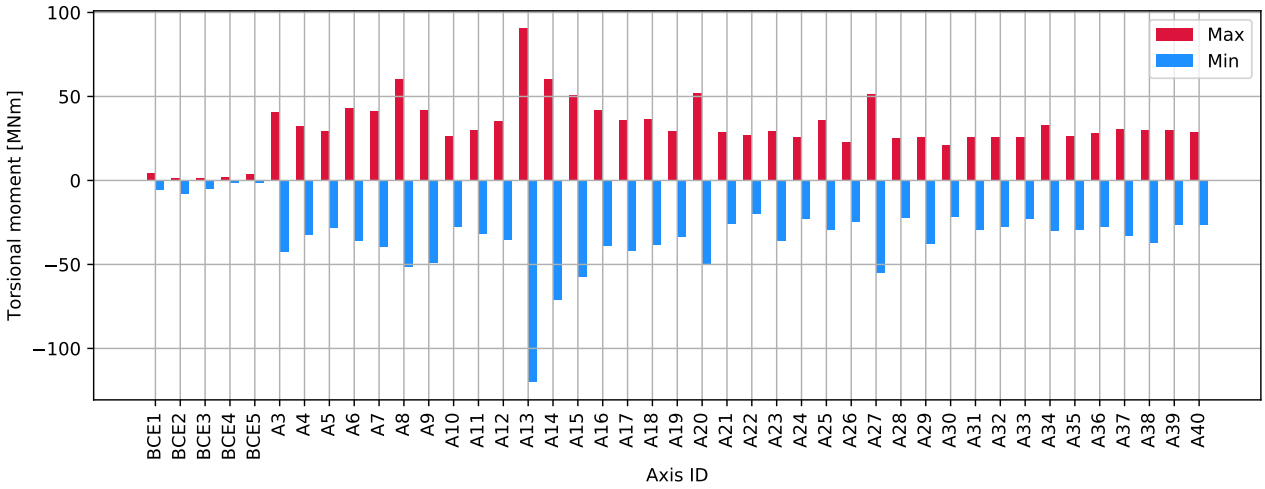

Figure 4.109: DH A13-A14 0deg - columns bottom : Torsional moment [MNm]

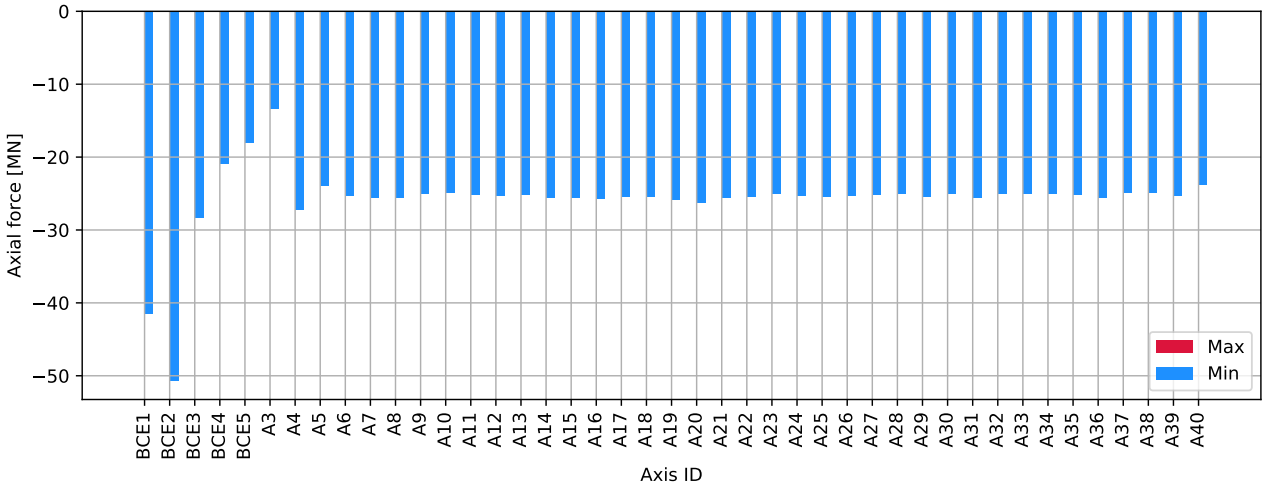

Figure 4.110: DH A13-A14 0deg - columns top : Axial force [MN]

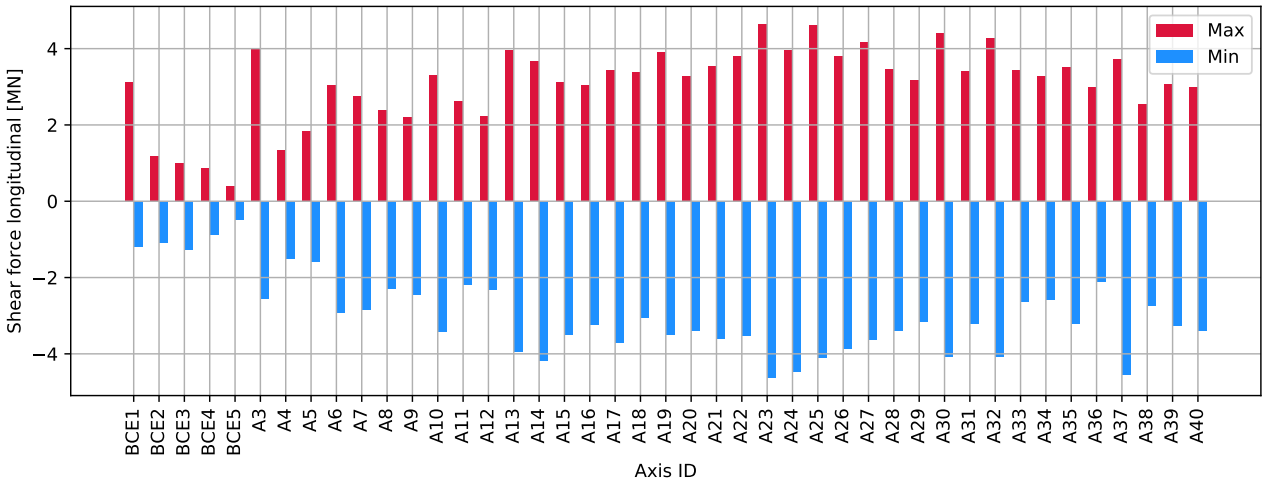

Figure 4.111: DH A13-A14 0deg - columns top : Shear force longitudinal [MN]

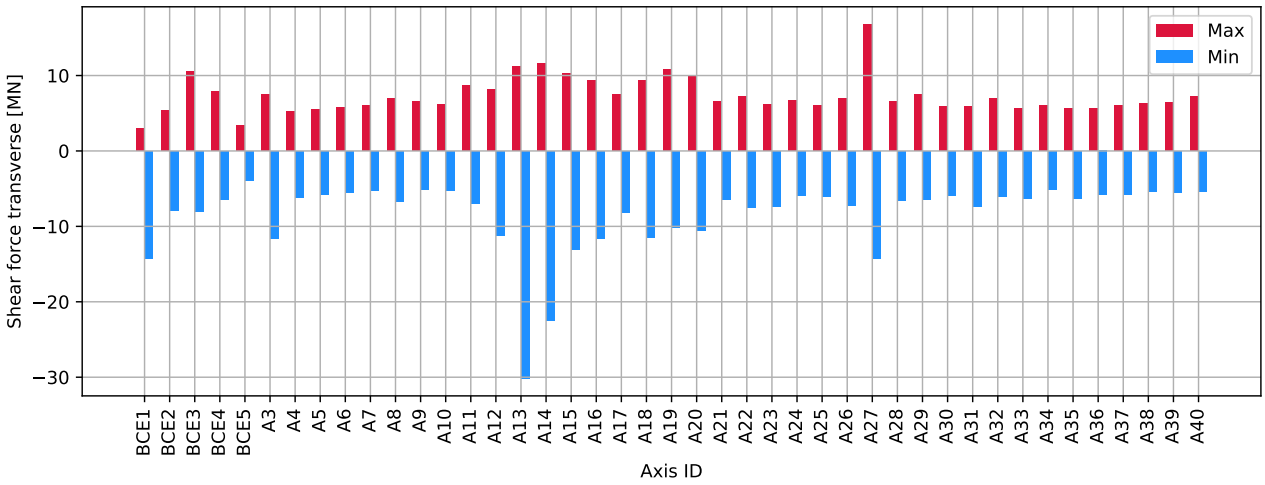

Figure 4.112: DH A13-A14 0deg - columns top : Shear force transverse [MN]

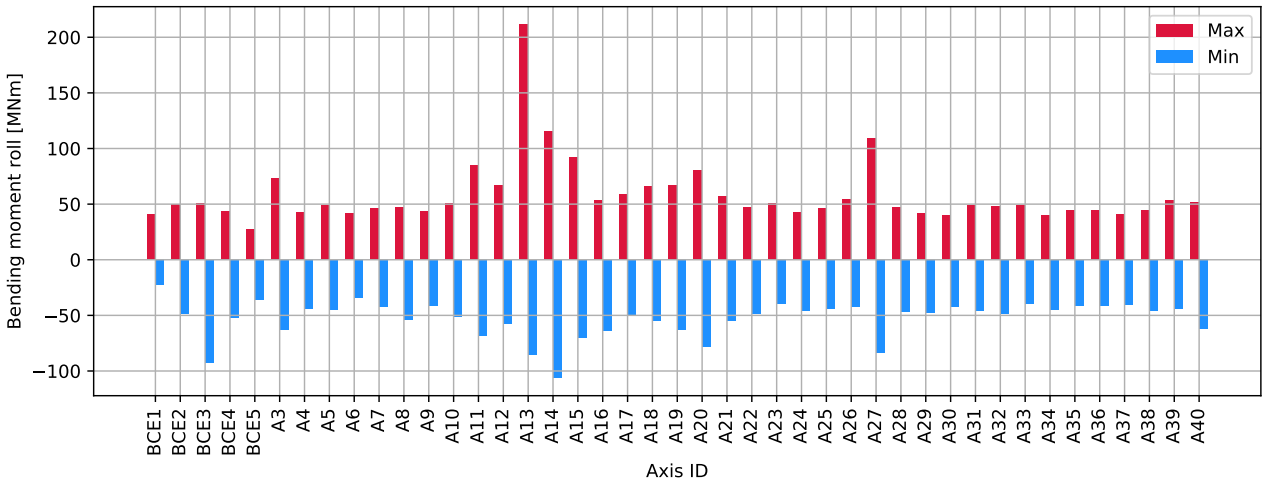

Figure 4.113: DH A13-A14 0deg - columns top : Bending moment roll [MNm]

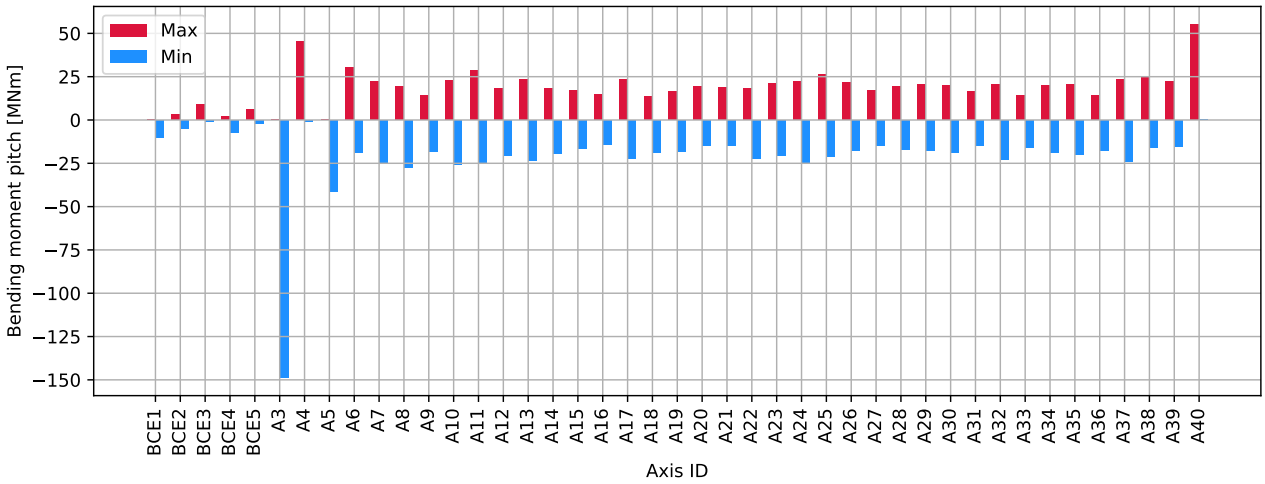

Figure 4.114: DH A13-A14 0deg - columns top : Bending moment pitch [MNm]

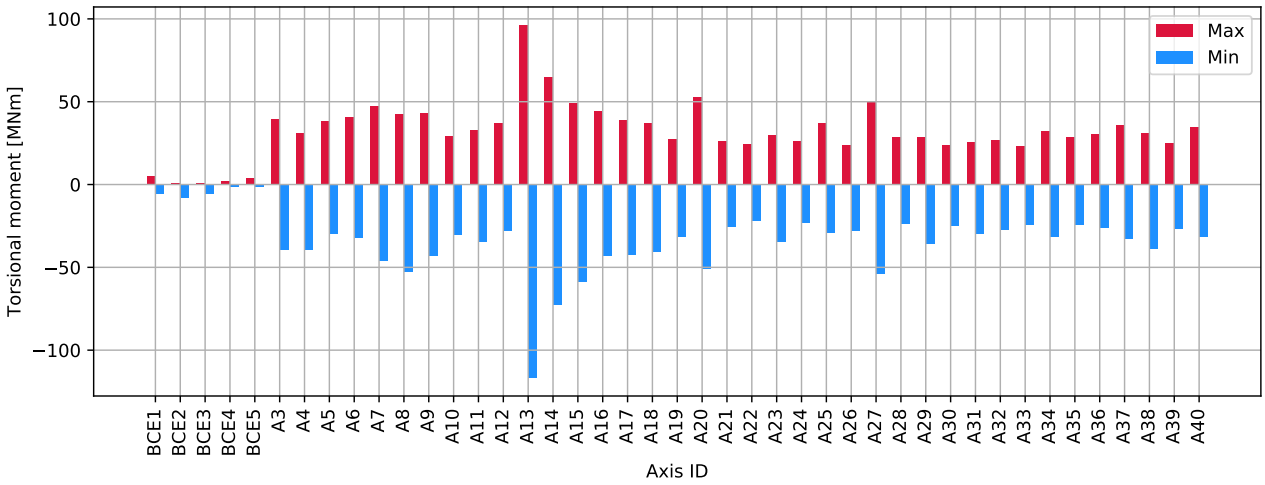

Figure 4.115: DH A13-A14 0deg - columns top : Torsional moment [MNm]

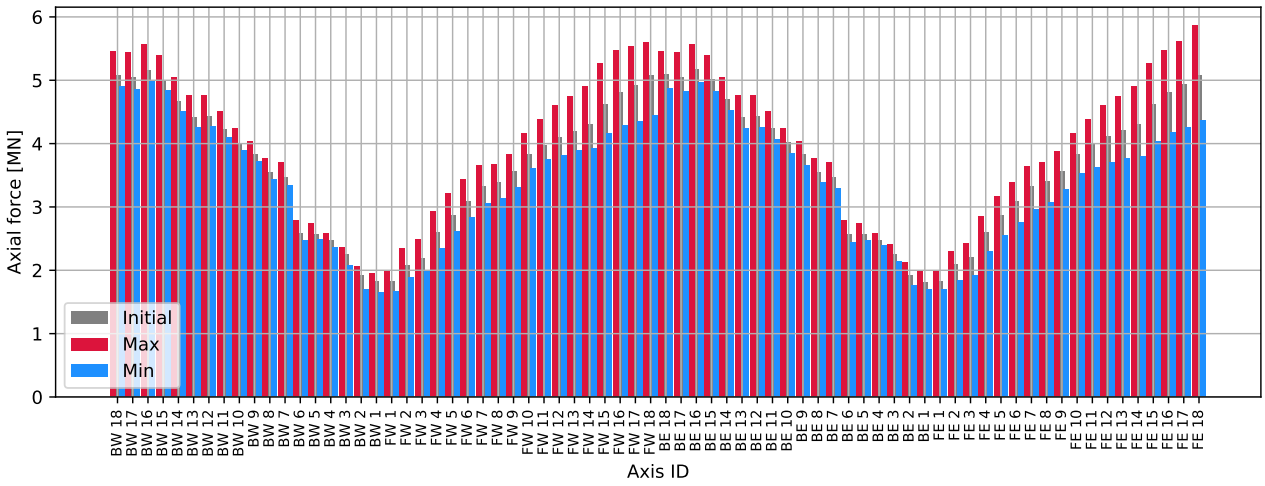

Figure 4.116: DH A13-A14 0deg - cables : Axial force [MN]

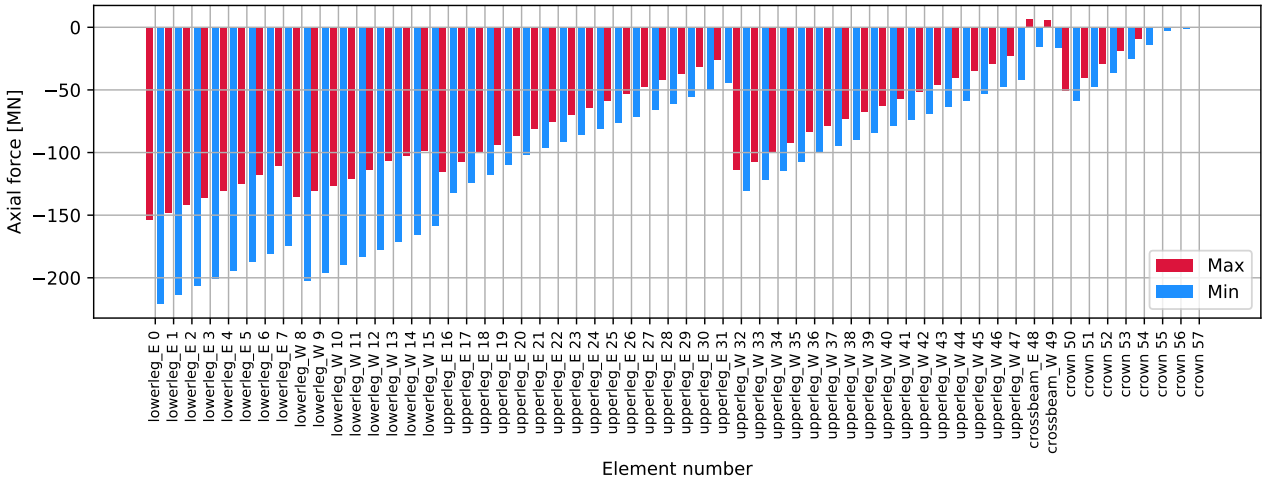

Figure 4.117: DH A13-A14 0deg - tower: Axial force [MN]

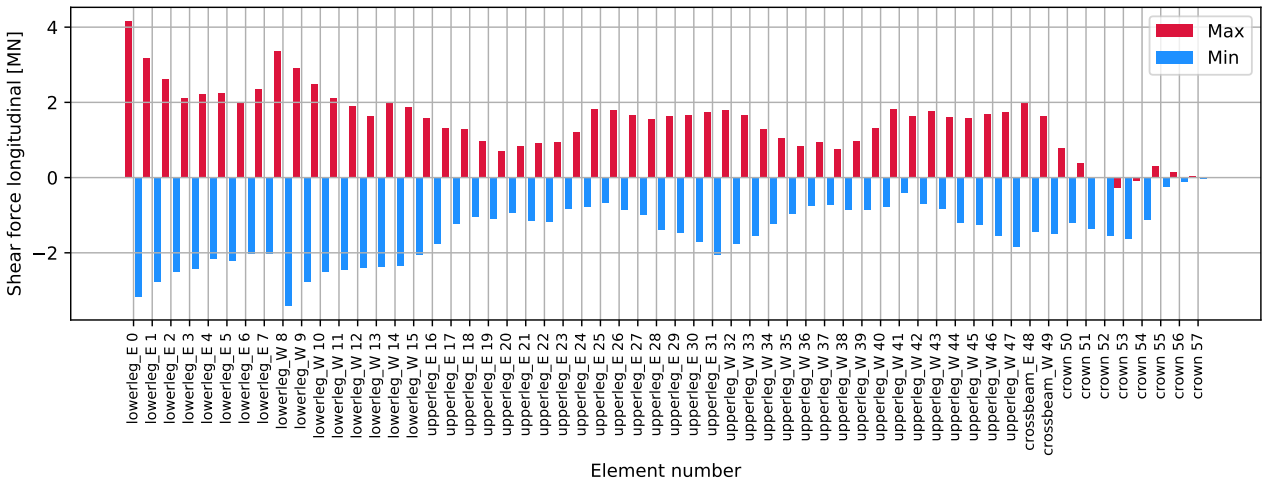

Figure 4.118: DH A13-A14 0deg - tower: Shear force longitudinal [MN]

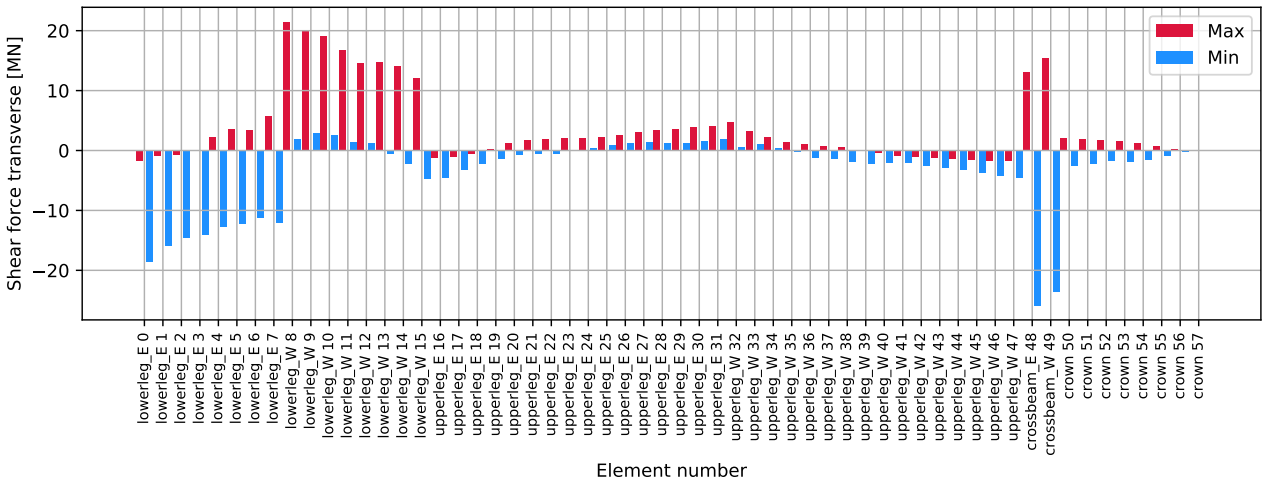

Figure 4.119: DH A13-A14 0deg - tower: Shear force transverse [MN]

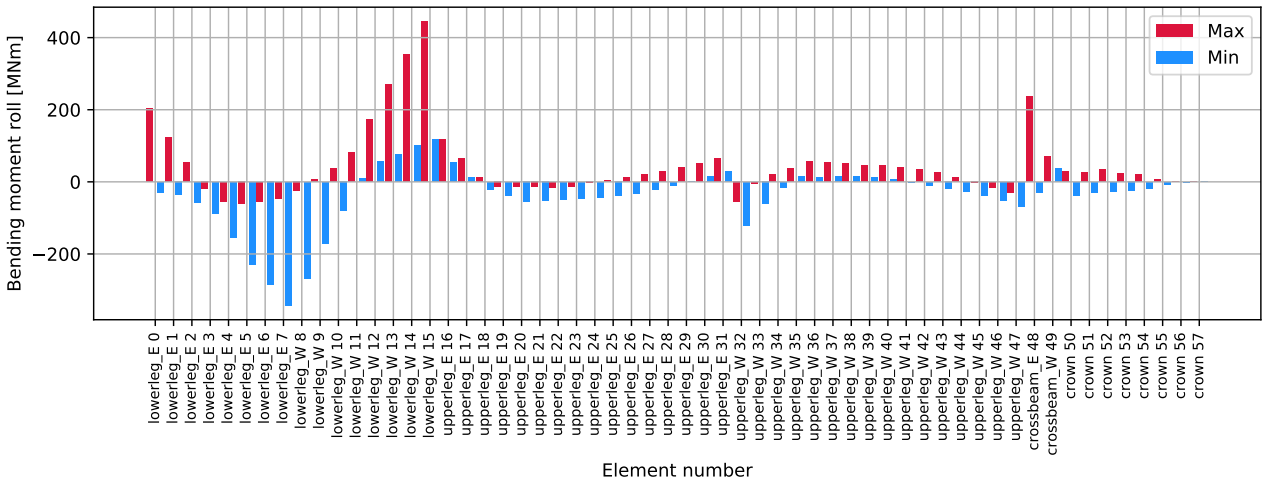

Figure 4.120: DH A13-A14 0deg - tower: Bending moment roll [MNm]

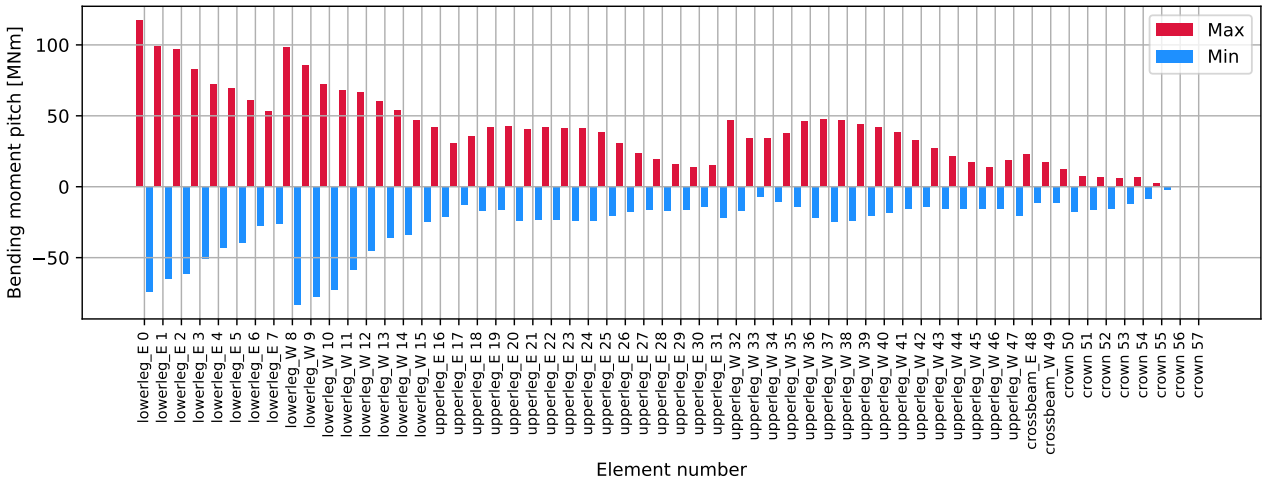

Figure 4.121: DH A13-A14 0deg - tower: Bending moment pitch [MNm]

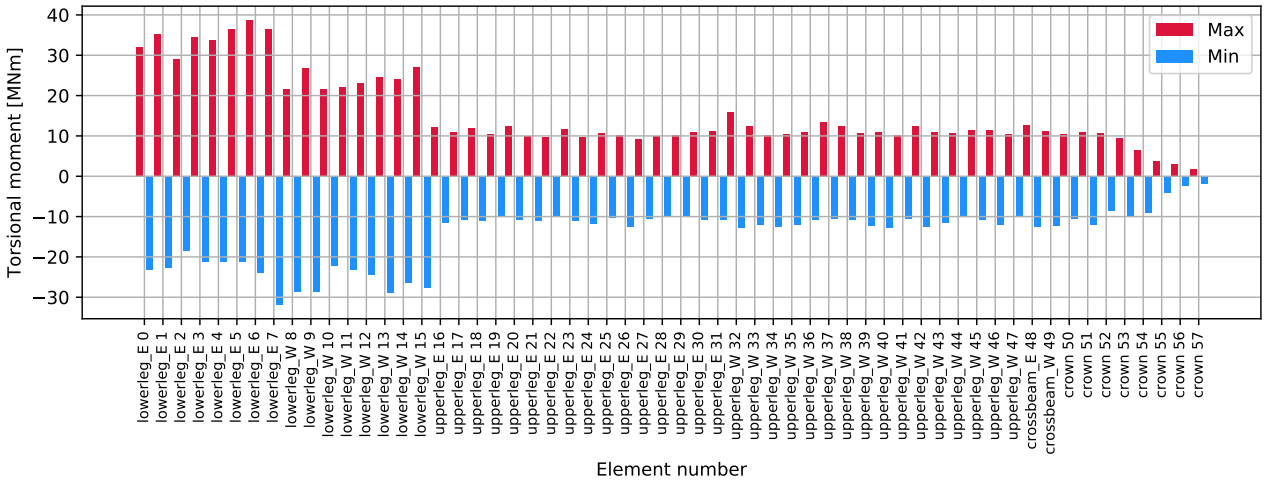

Figure 4.122: DH A13-A14 0deg - tower: Torsional moment [MNm]

4.3.3 Time series

Note : Time series are filtered using a Saviotzky-Golay filter for increased readability of the time history plots. Hence, maximum values that occur due to a rapid vibration are not shown in the plots. For maximum values, refer to the tabulated data.
All elements are numbered from South to North, bottom to top

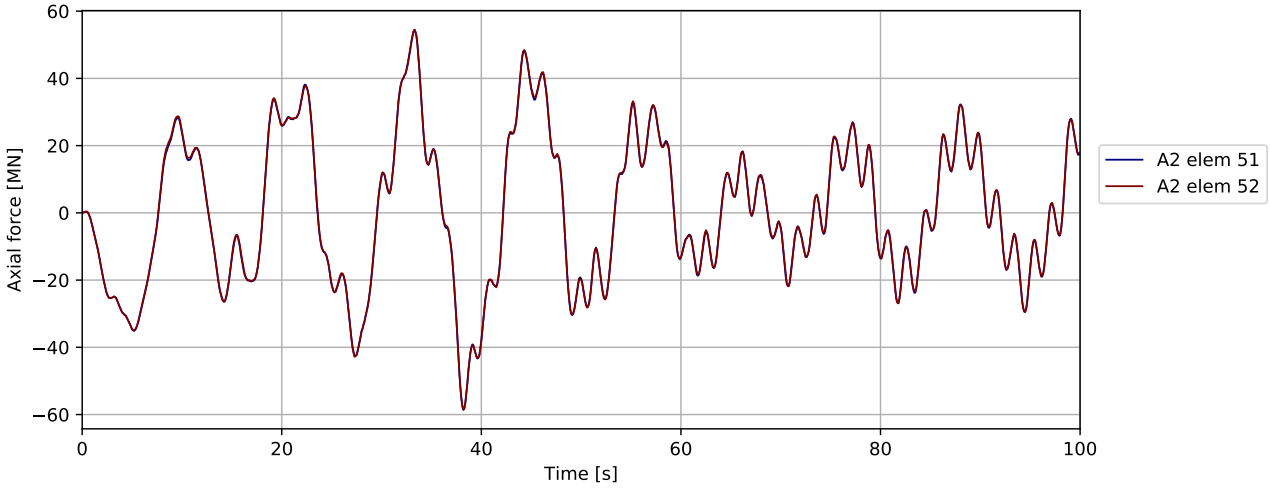

Figure 4.123: DH A13-A14 0deg - bridgegirder @ pylon: Axial force [MN]

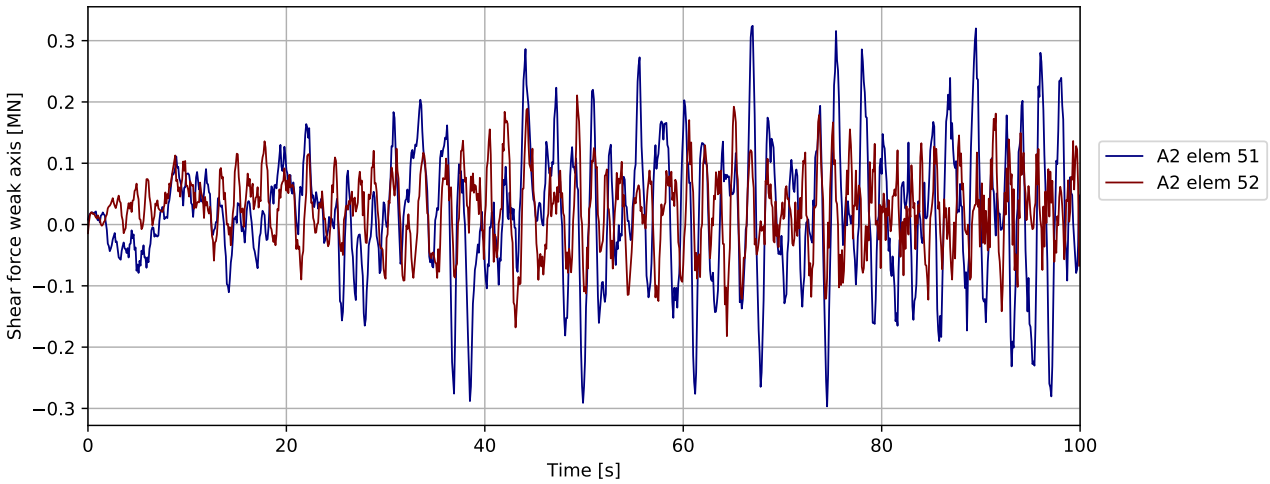

Figure 4.124: DH A13-A14 0deg - bridgegirder @ pylon: Shear force weak axis [MN]

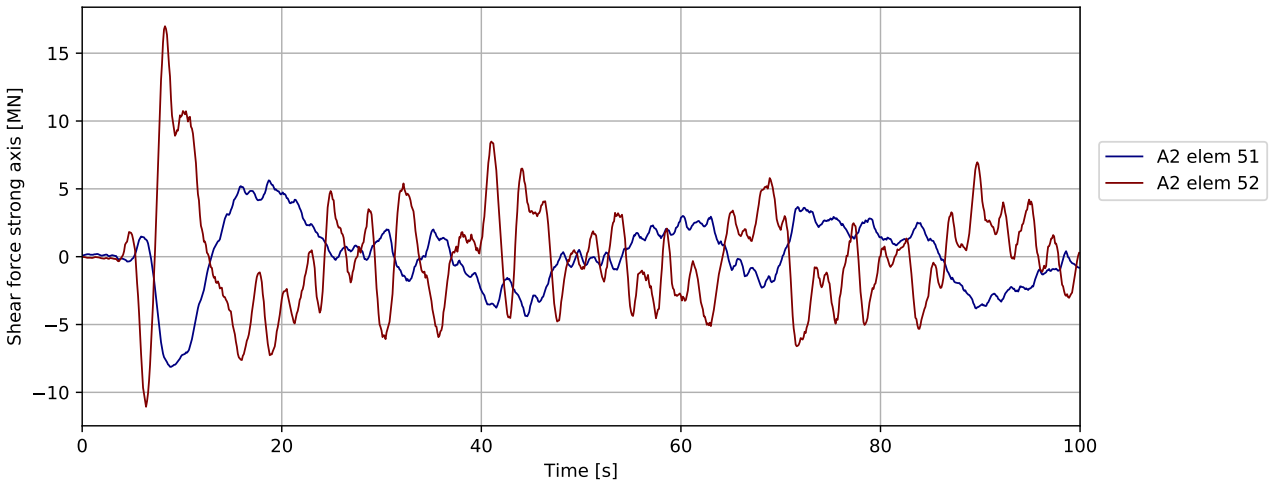

Figure 4.125: DH A13-A14 0deg - bridgegirder @ pylon: Shear force strong axis [MN]

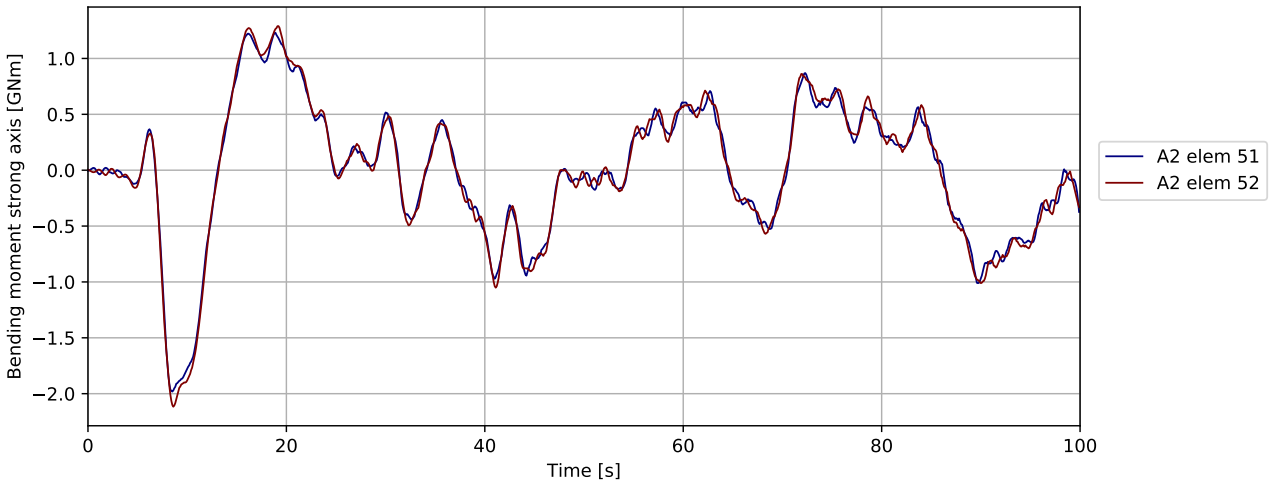

Figure 4.126: DH A13-A14 0deg - bridgegirder @ pylon: Bending moment strong axis [GNm]

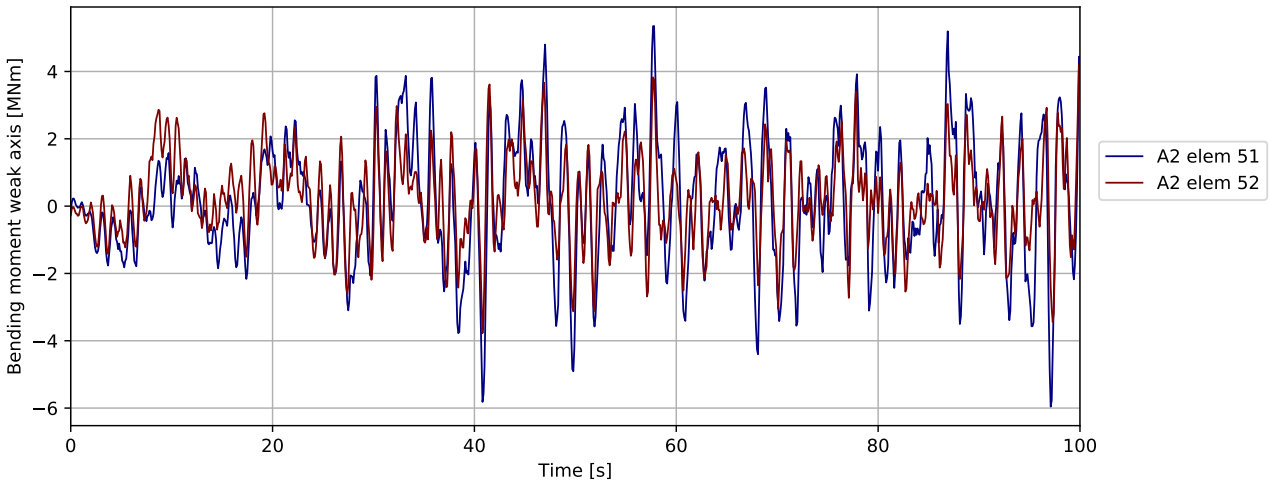

Figure 4.127: DH A13-A14 0deg - bridgegirder @ pylon: Bending moment weak axis [MNm]

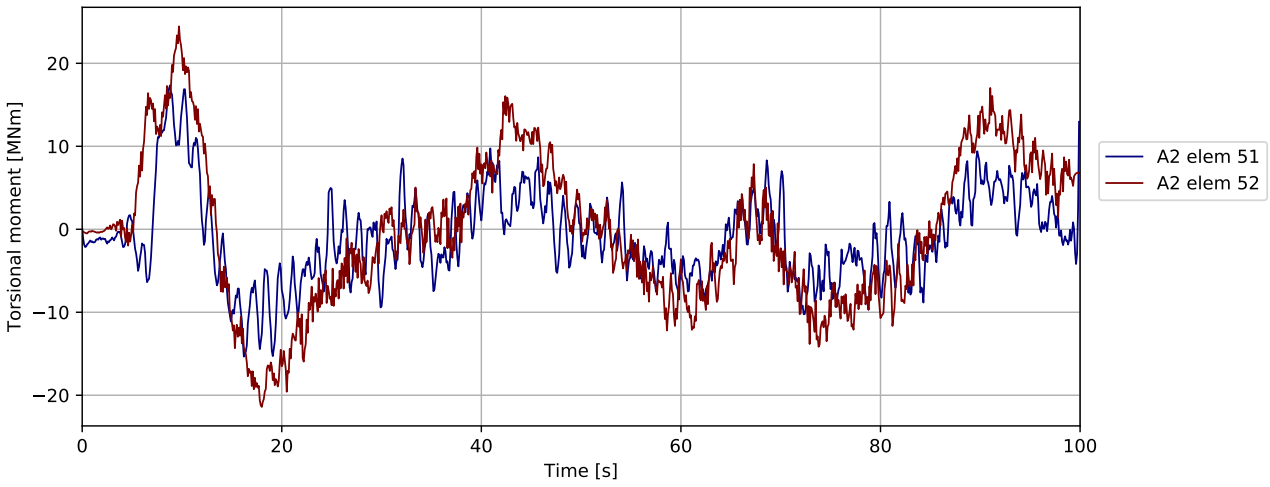

Figure 4.128: DH A13-A14 0deg - bridgegirder @ pylon: Torsional moment [MNm]

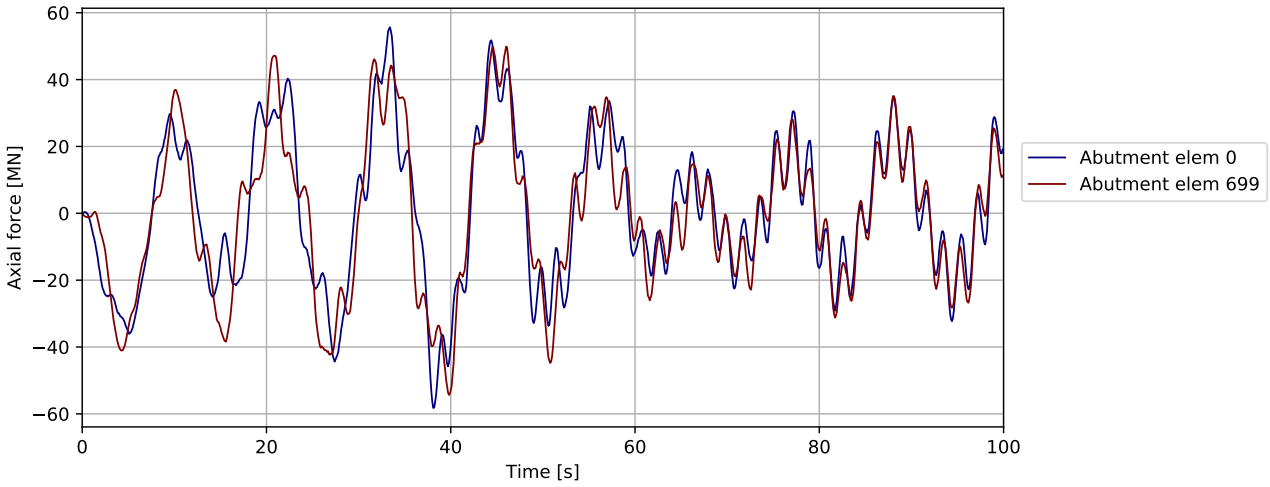

Figure 4.129: DH A13-A14 0deg - bridgegirder @abutments: Axial force [MN]

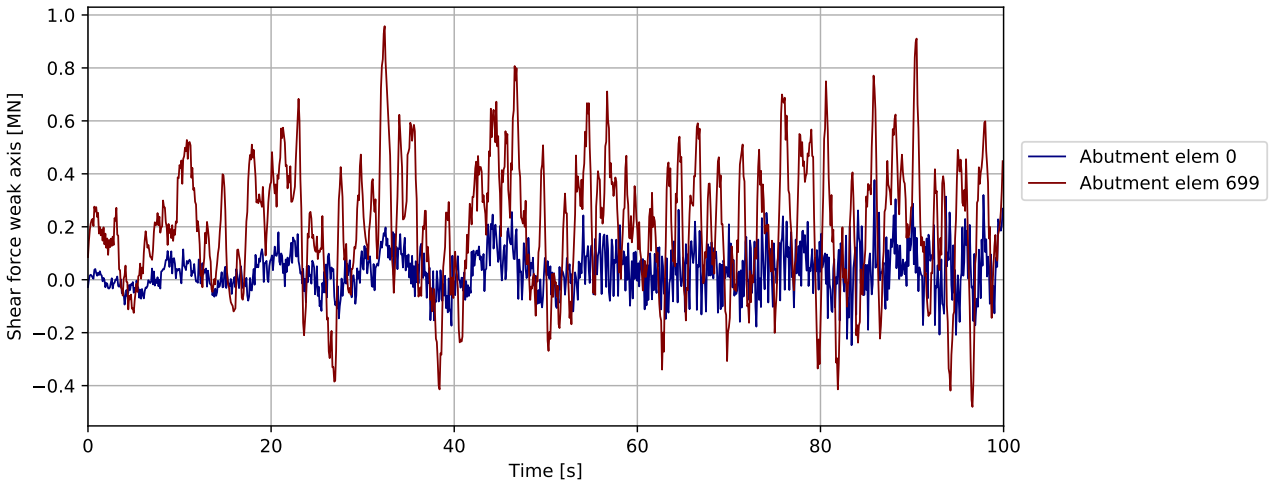

Figure 4.130: DH A13-A14 0deg - bridgegirder @abutments: Shear force weak axis [MN]

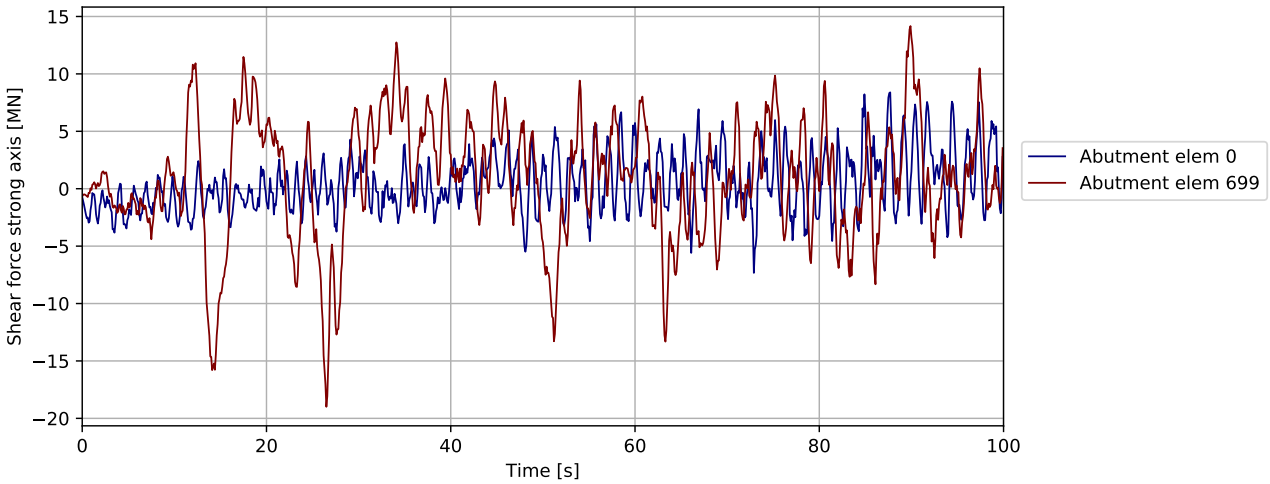

Figure 4.131: DH A13-A14 0deg - bridgegirder @abutments: Shear force strong axis [MN]

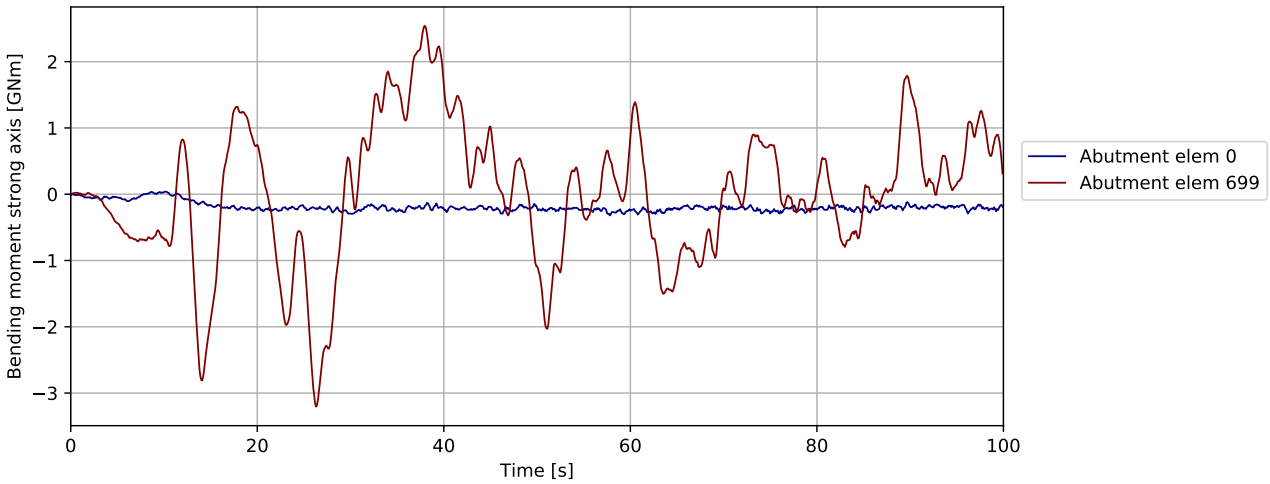

Figure 4.132: DH A13-A14 0deg - bridgegirder @abutments: Bending moment strong axis [GNm]

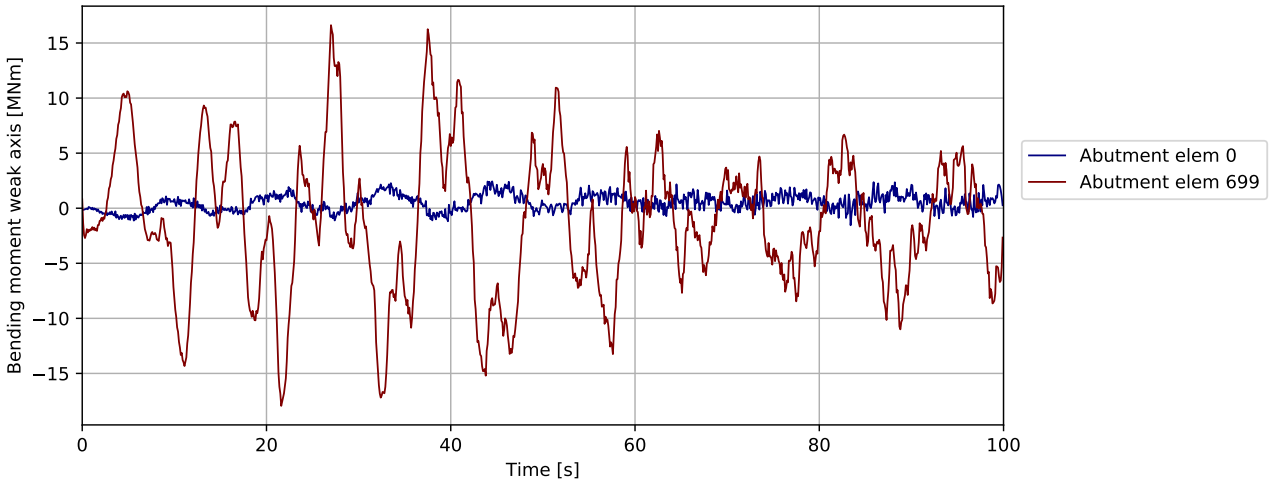

Figure 4.133: DH A13-A14 0deg - bridgegirder @abutments: Bending moment weak axis [MNm]

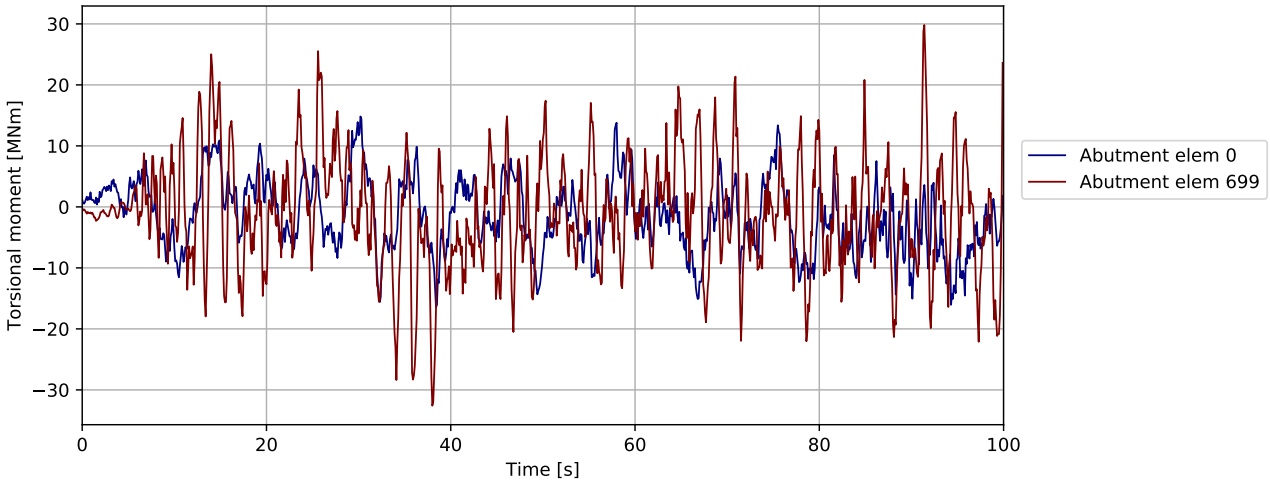

Figure 4.134: DH A13-A14 0deg - bridgegirder @abutments: Torsional moment [MNm]

Note : Compressive spring force is negative

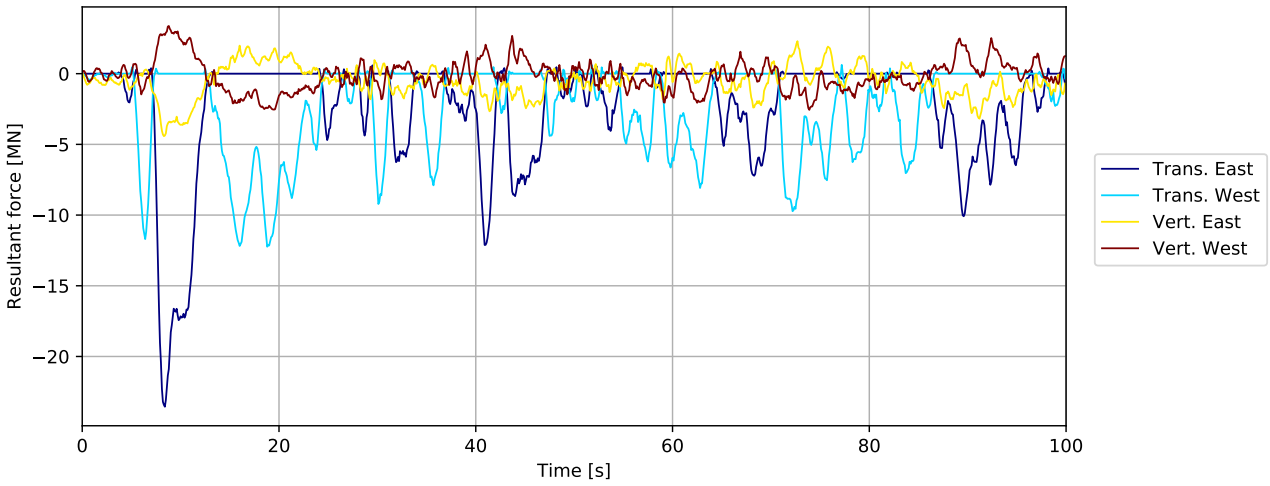

Figure 4.135: DH A13-A14 0deg - bridgegirder supports in tower: Resultant force [MN]

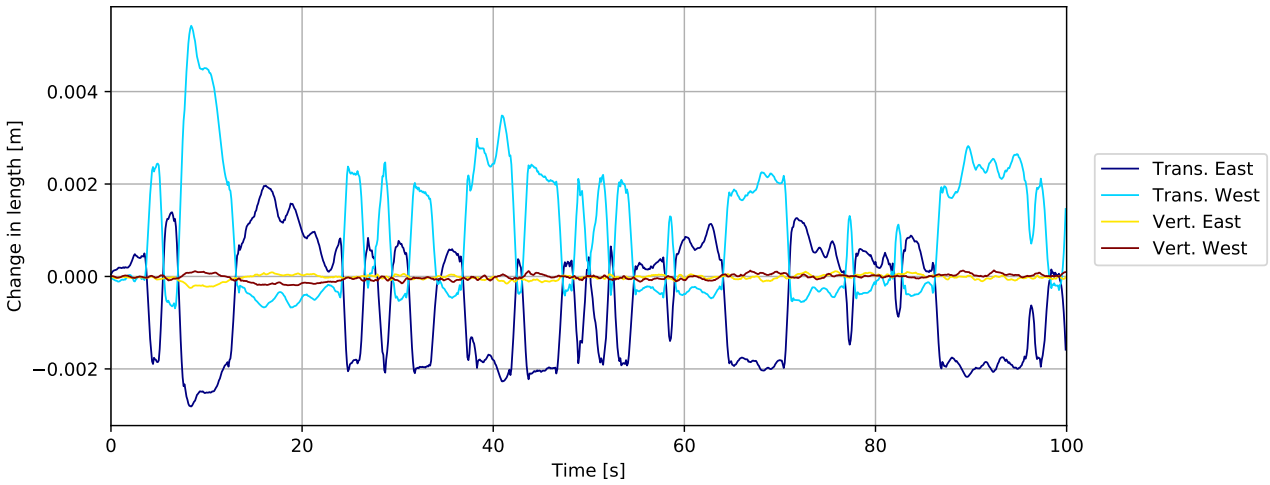

Figure 4.136: DH A13-A14 0deg - bridgegirder supports in tower: Change in length [m]

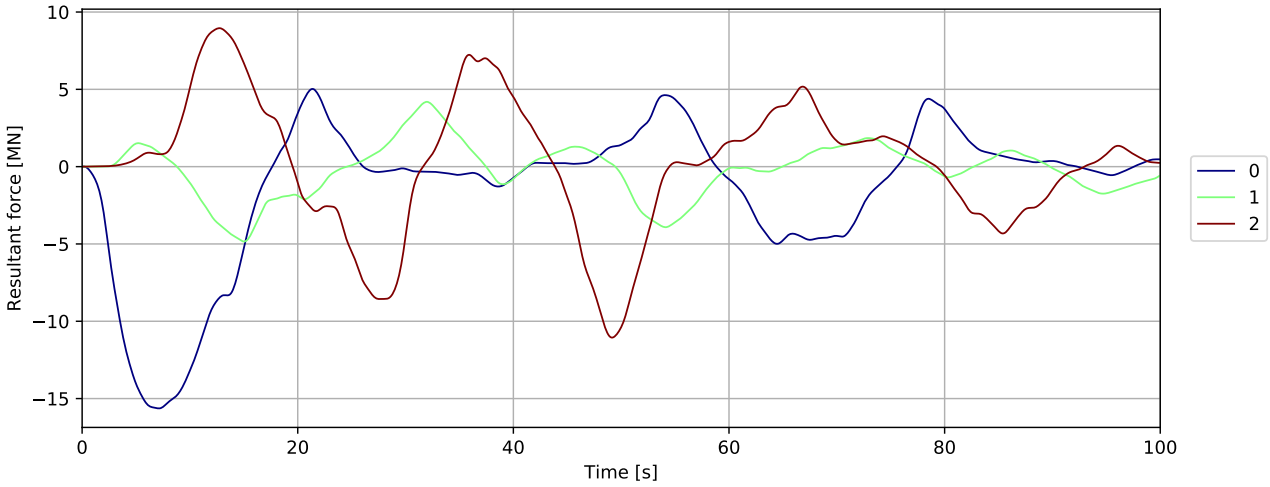

Figure 4.137: Mooring force

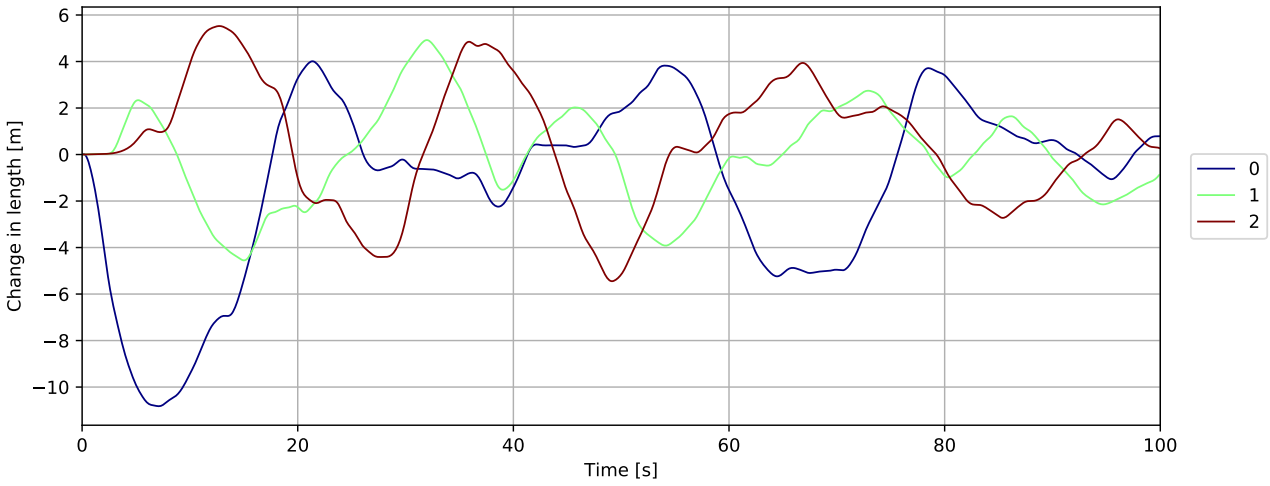

Figure 4.138: Mooring displacement

4.4 Deck house A16-A17 0deg

4.4.1 Overall response

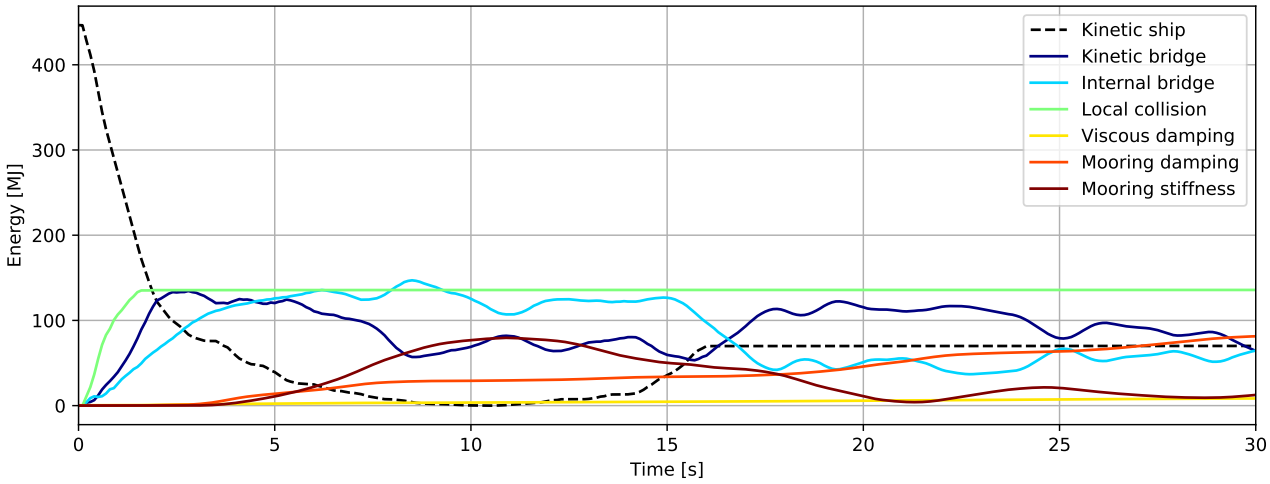

Figure 4.139: Energy [MJ] - initial phase

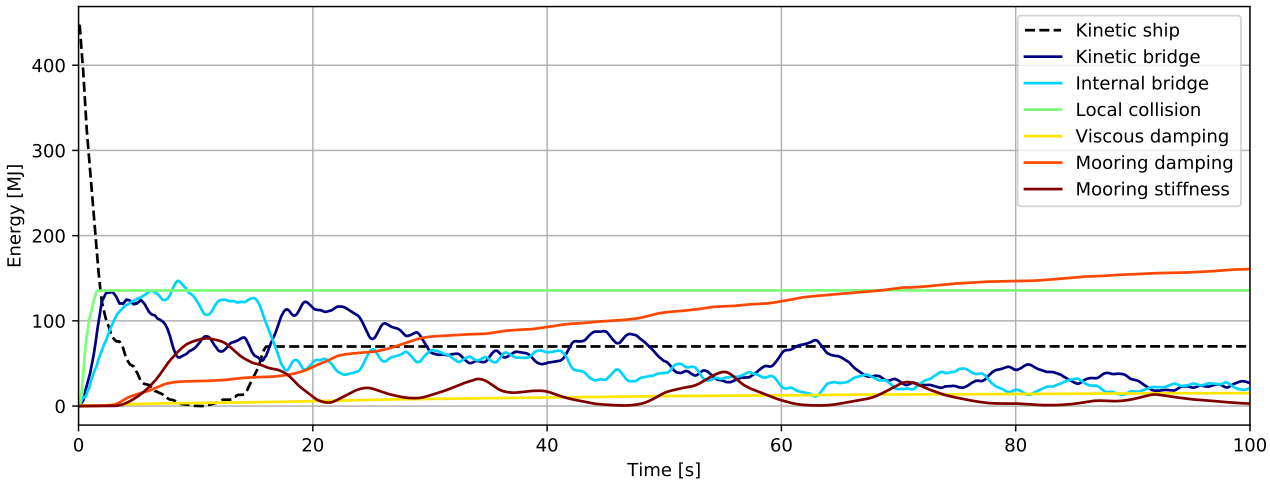

Figure 4.140: Energy [MJ]

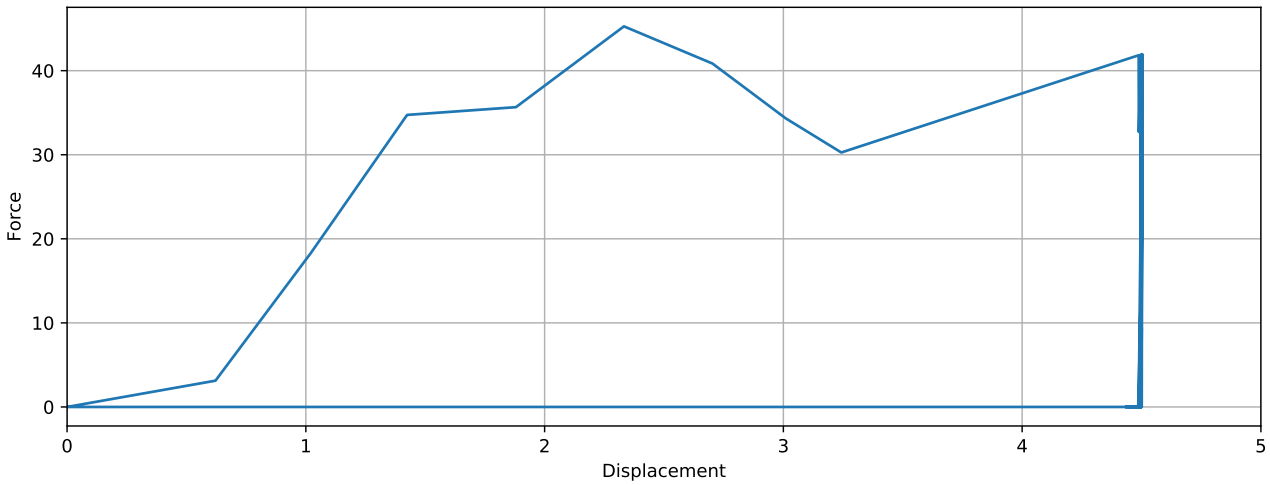

Figure 4.141: Simulated local collision force-displacement

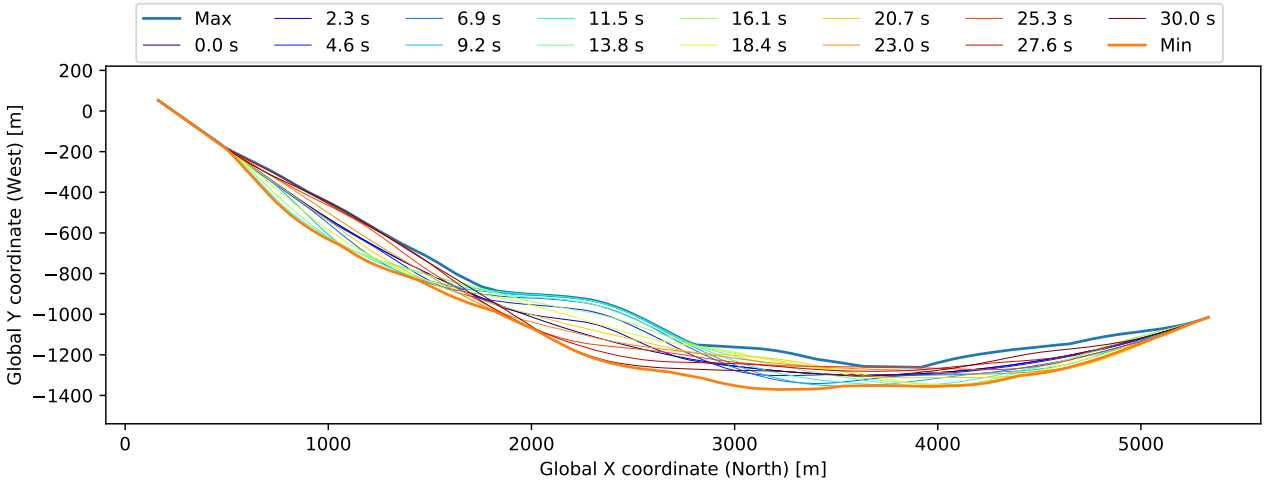

Figure 4.142: Bridgegirder deflection (10x displacment scaling)

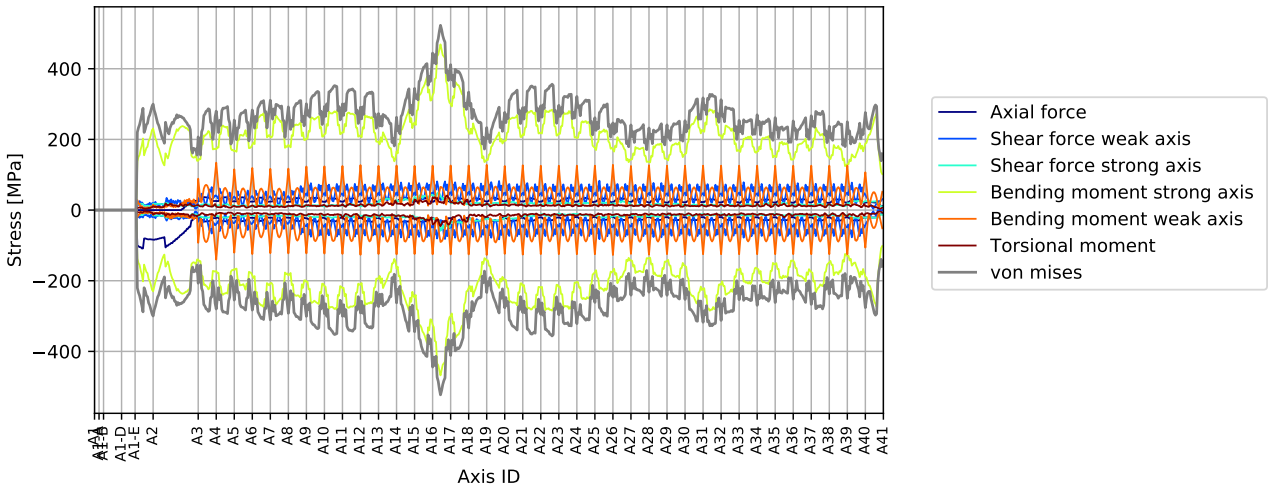

Figure 4.143: Stress envelope from all force components

4.4.2 Envelope plots

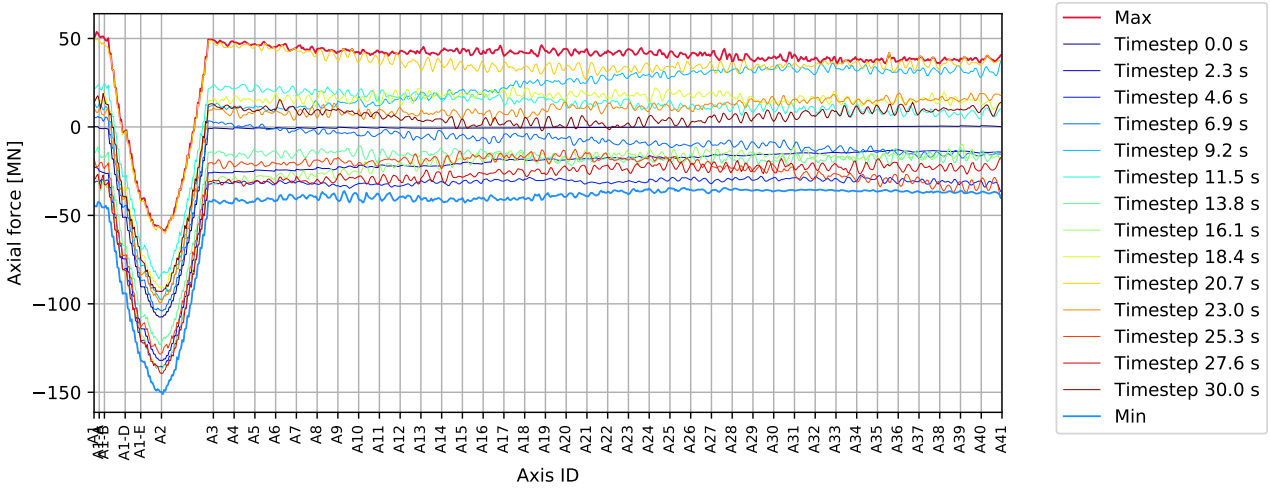

Figure 4.144: DH A16-A17 0deg - bridgegirder : Axial force [MN]

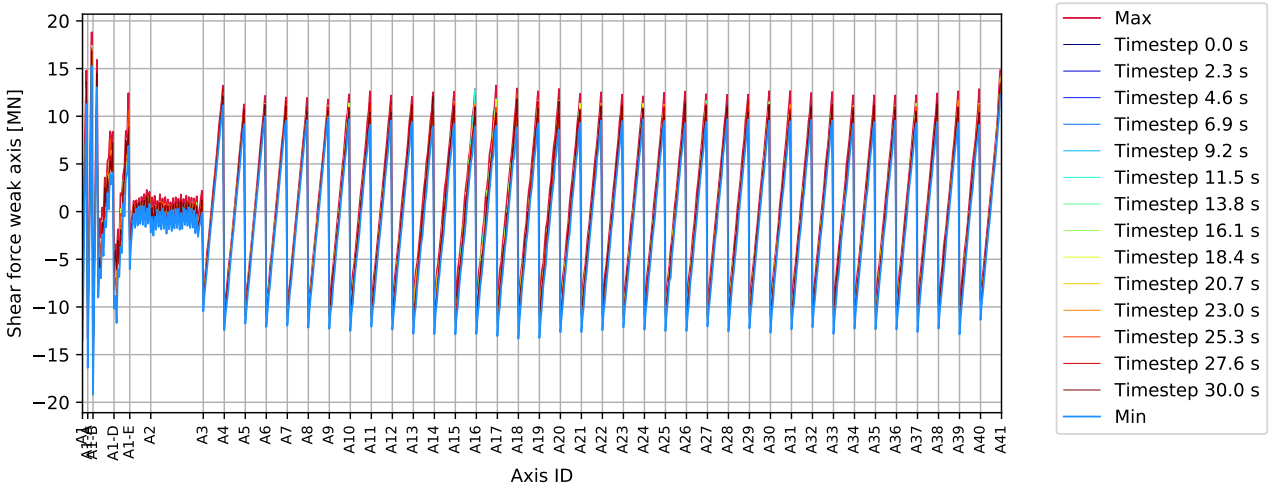

Figure 4.145: DH A16-A17 0deg - bridgegirder : Shear force weak axis [MN]

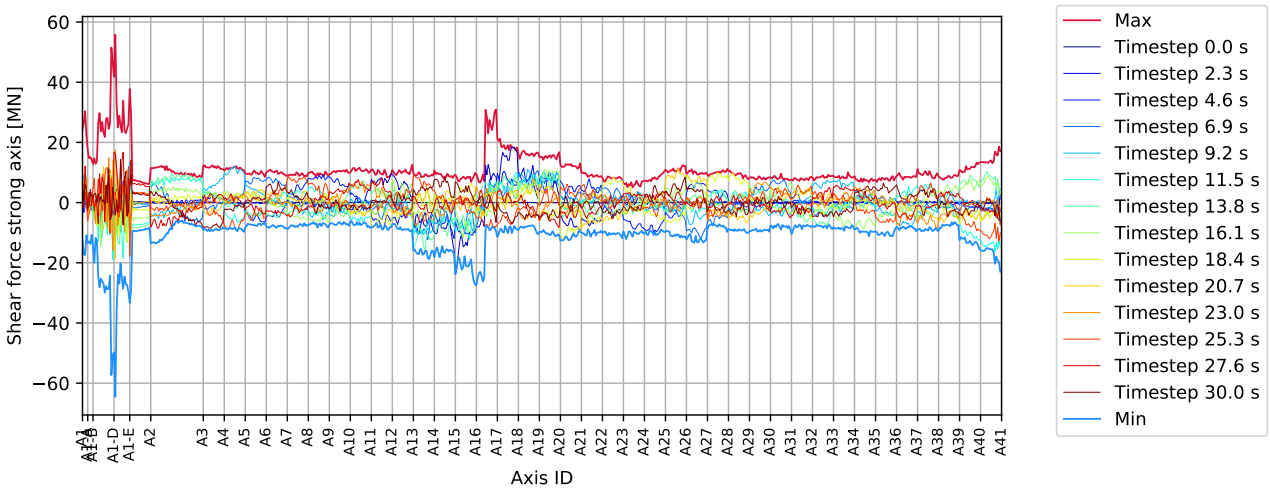

Figure 4.146: DH A16-A17 0deg - bridgegirder : Shear force strong axis [MN]

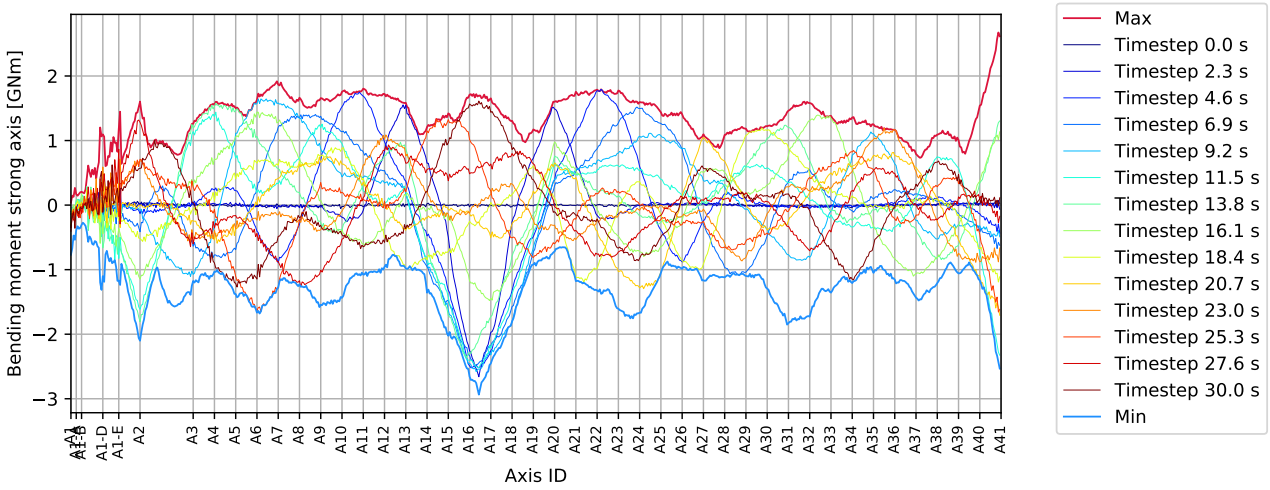

Figure 4.147: DH A16-A17 0deg - bridgegirder : Bending moment strong axis [GNm]

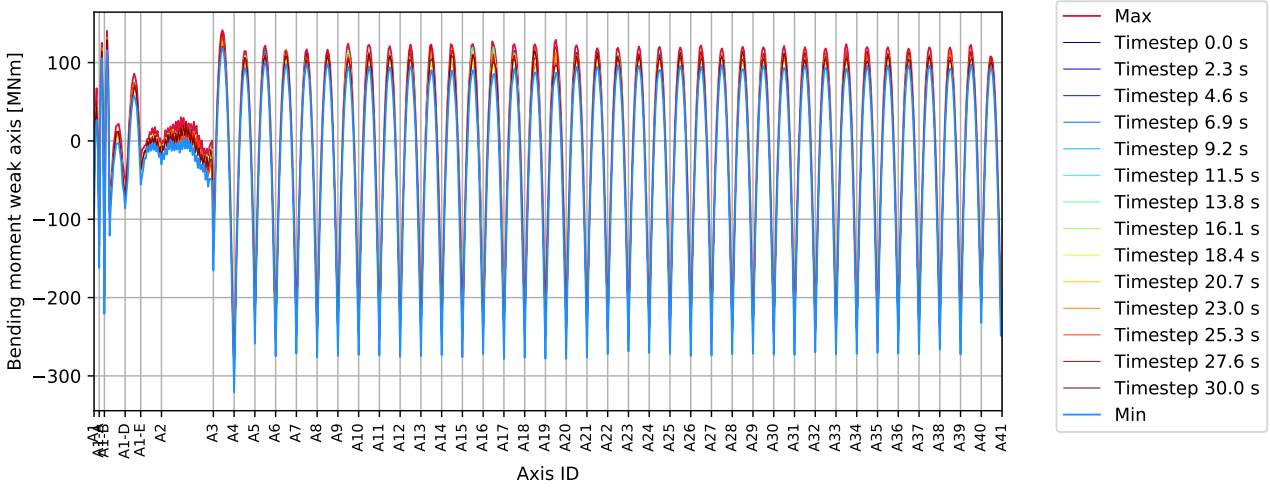

Figure 4.148: DH A16-A17 0deg - bridgegirder : Bending moment weak axis [MNm]

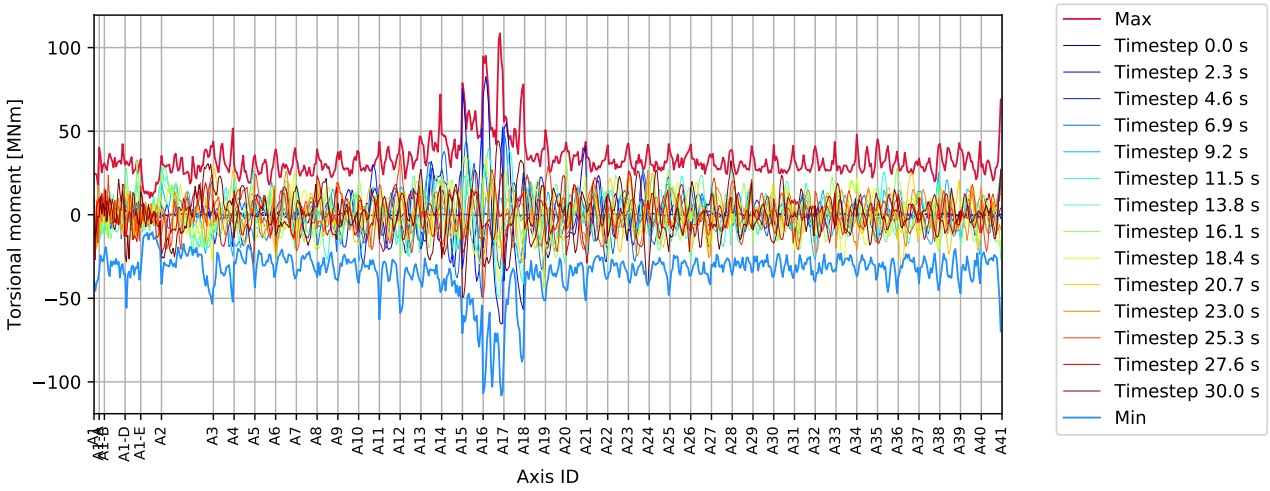

Figure 4.149: DH A16-A17 0deg - bridgegirder : Torsional moment [MNm]

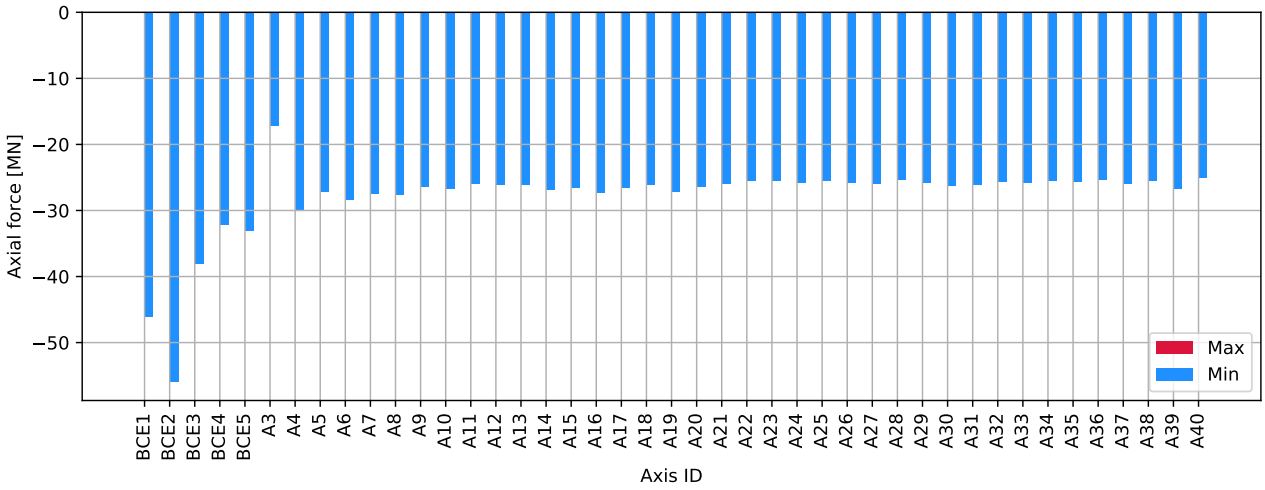

Figure 4.150: DH A16-A17 0deg - columns bottom : Axial force [MN]

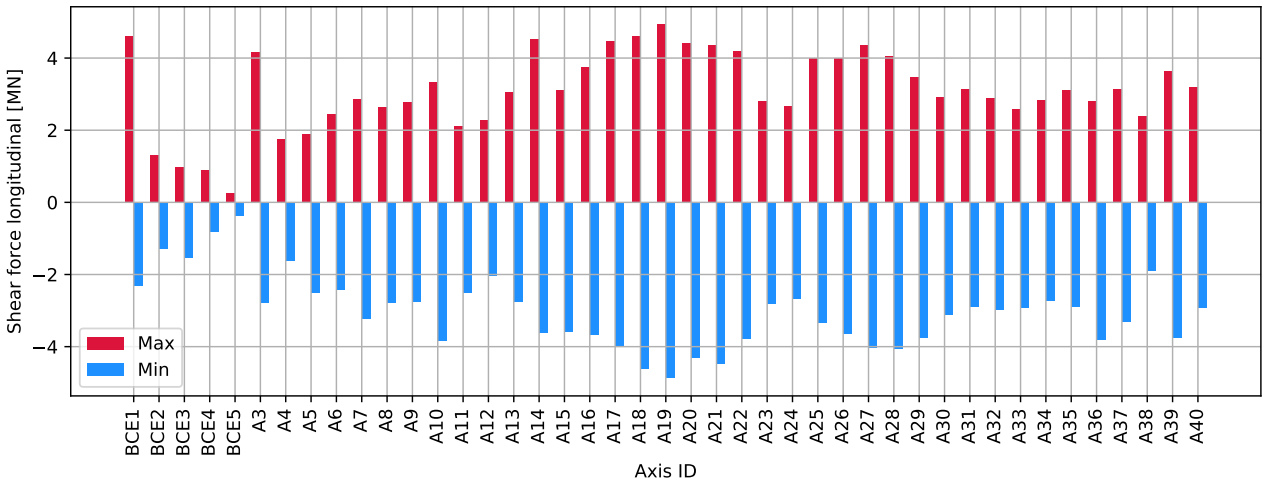

Figure 4.151: DH A16-A17 0deg - columns bottom : Shear force longitudinal [MN]

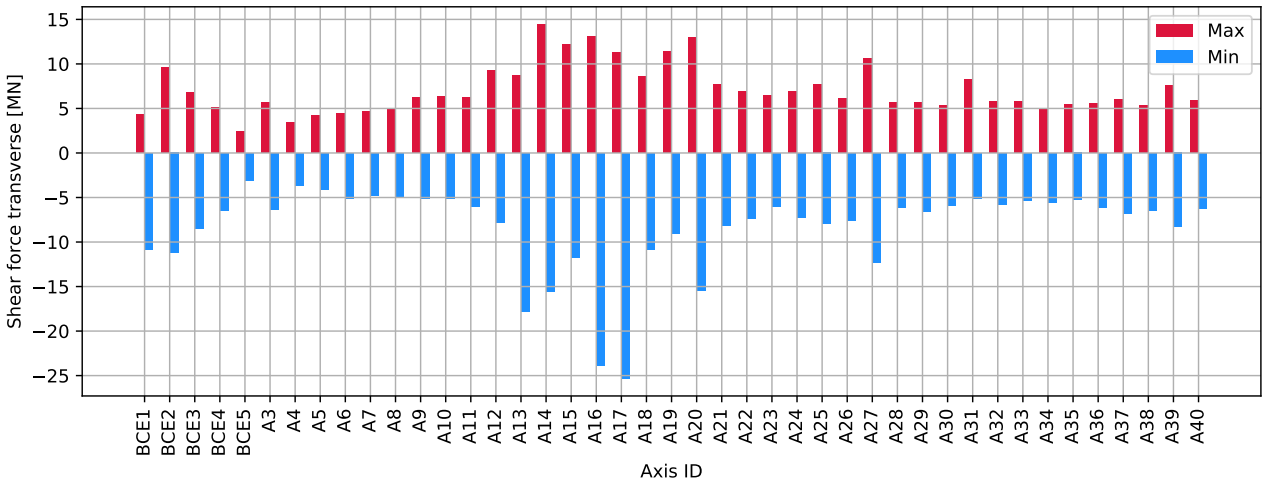

Figure 4.152: DH A16-A17 0deg - columns bottom : Shear force transverse [MN]

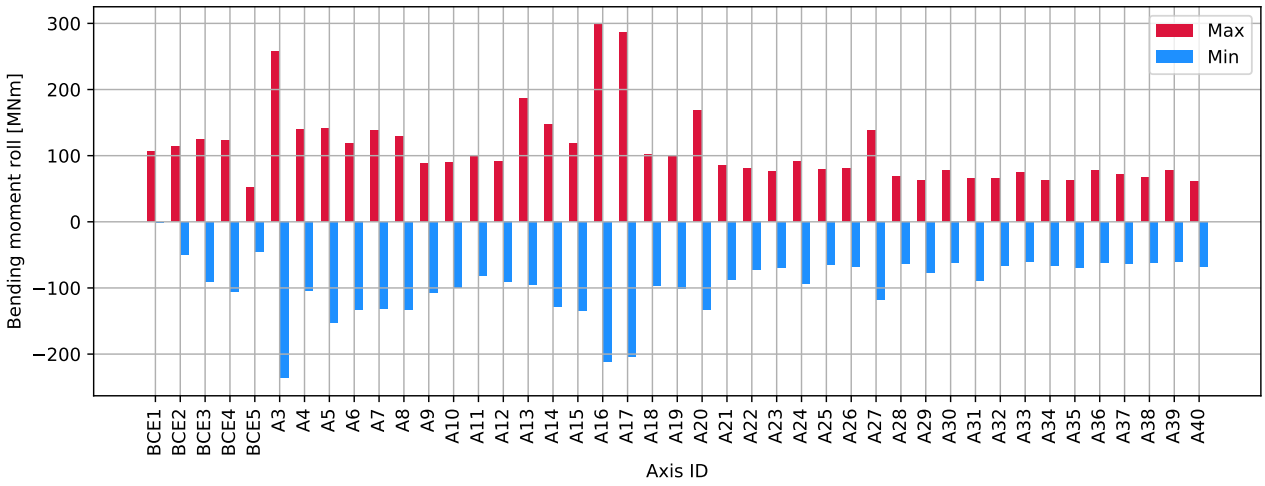

Figure 4.153: DH A16-A17 0deg - columns bottom : Bending moment roll [MNm]

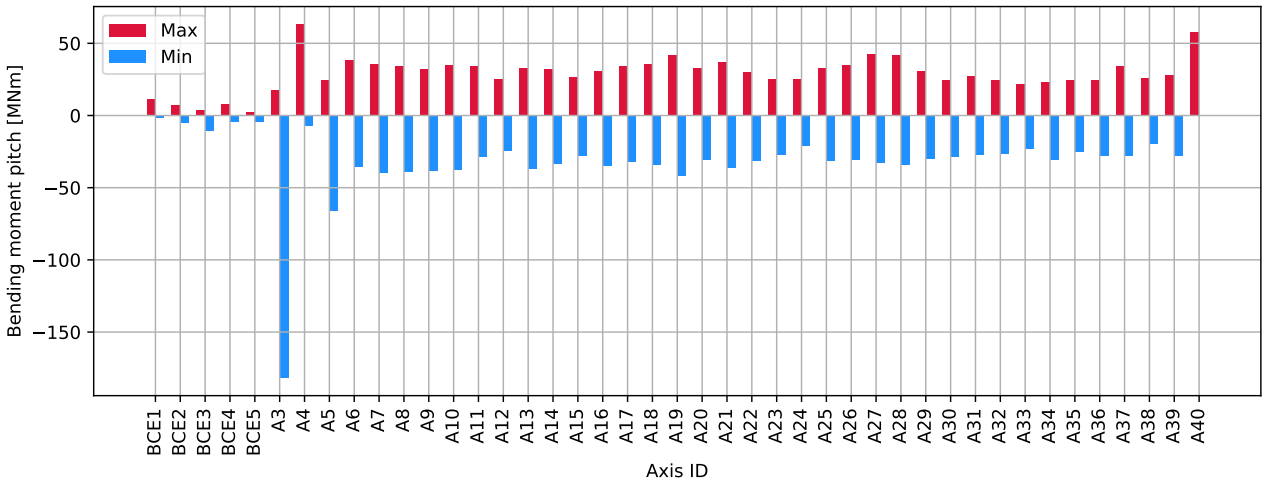

Figure 4.154: DH A16-A17 0deg - columns bottom : Bending moment pitch [MNm]

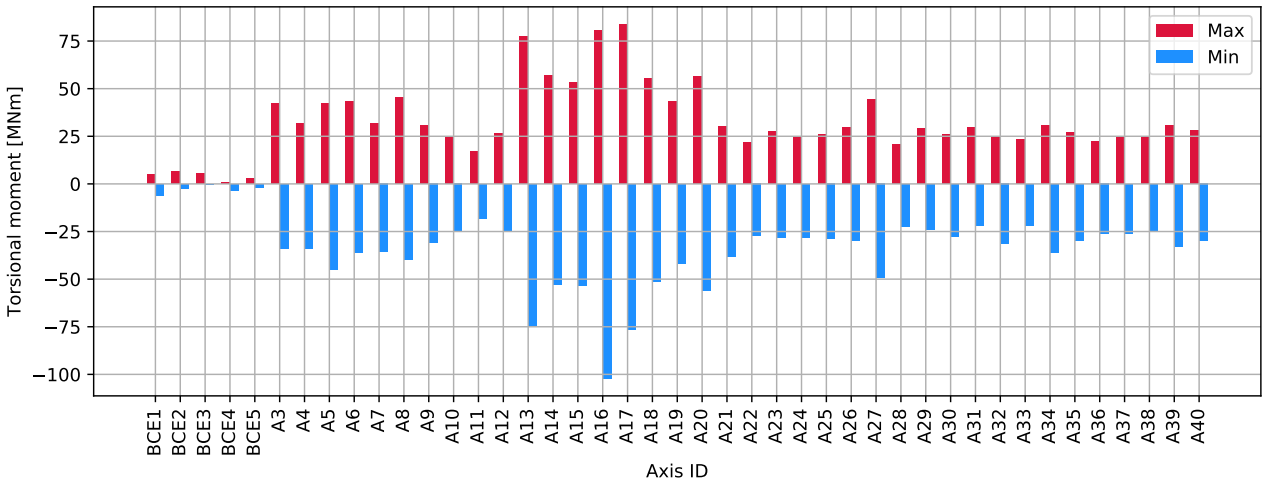

Figure 4.155: DH A16-A17 0deg - columns bottom : Torsional moment [MNm]

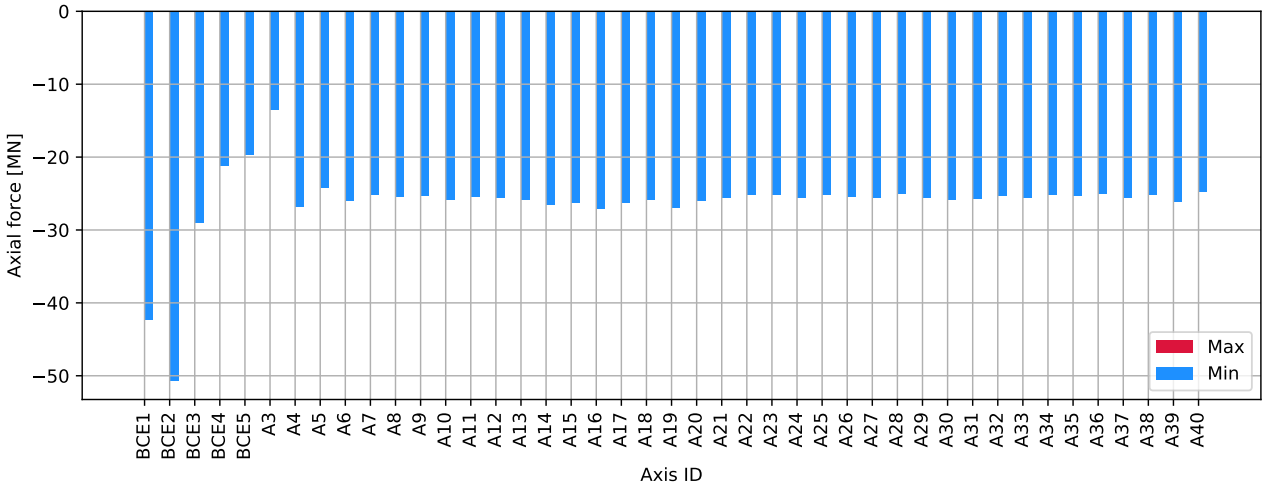

Figure 4.156: DH A16-A17 0deg - columns top : Axial force [MN]

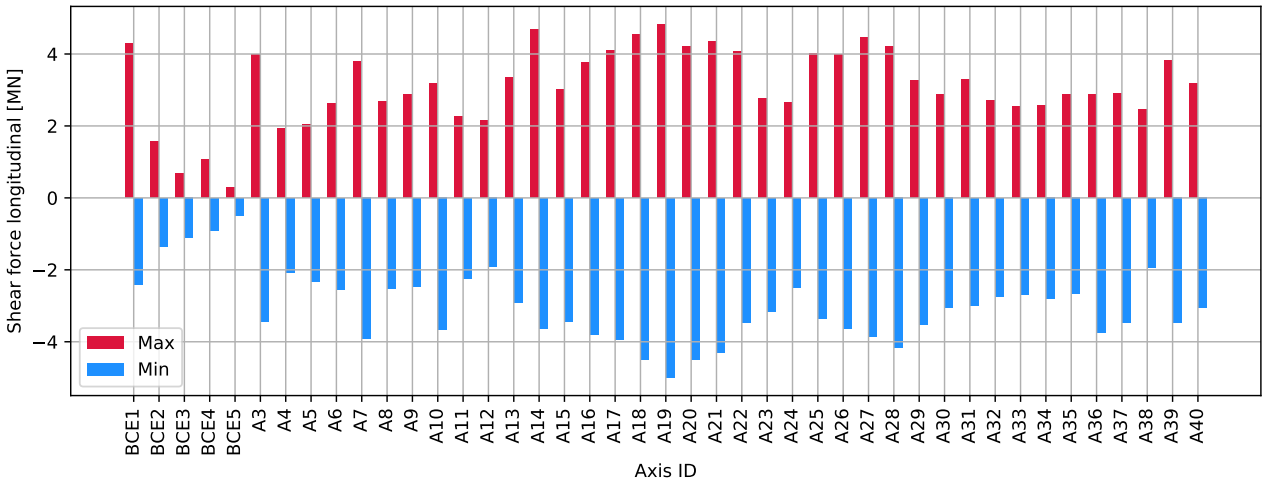

Figure 4.157: DH A16-A17 0deg - columns top : Shear force longitudinal [MN]

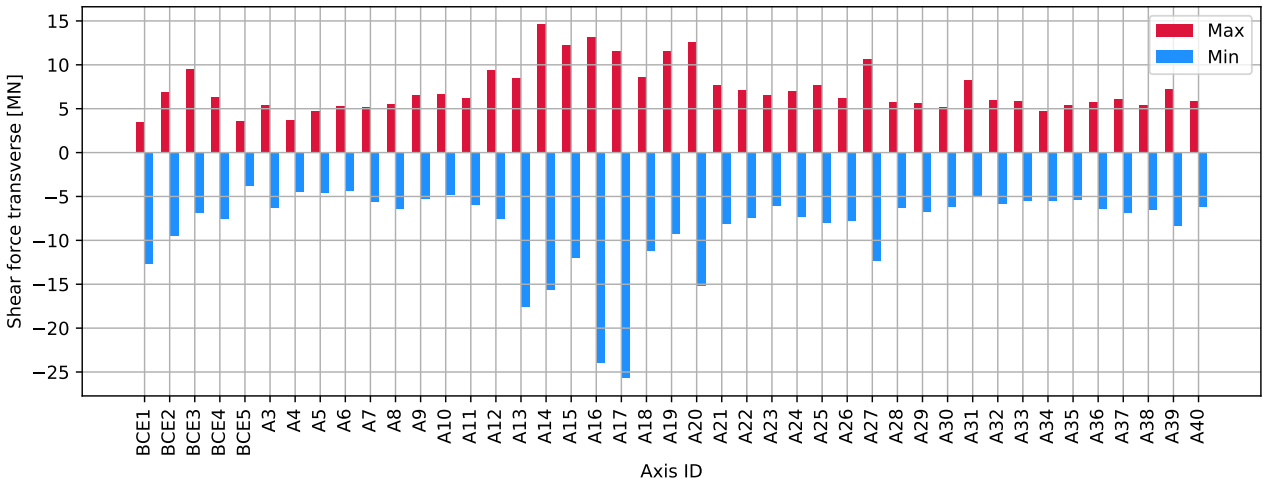

Figure 4.158: DH A16-A17 0deg - columns top : Shear force transverse [MN]

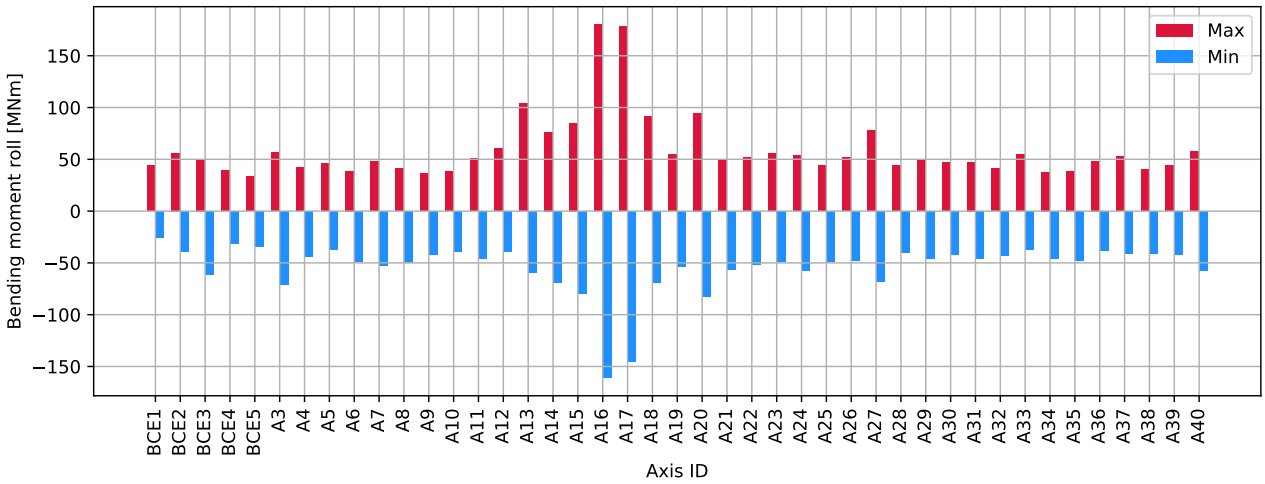

Figure 4.159: DH A16-A17 0deg - columns top : Bending moment roll [MNm]

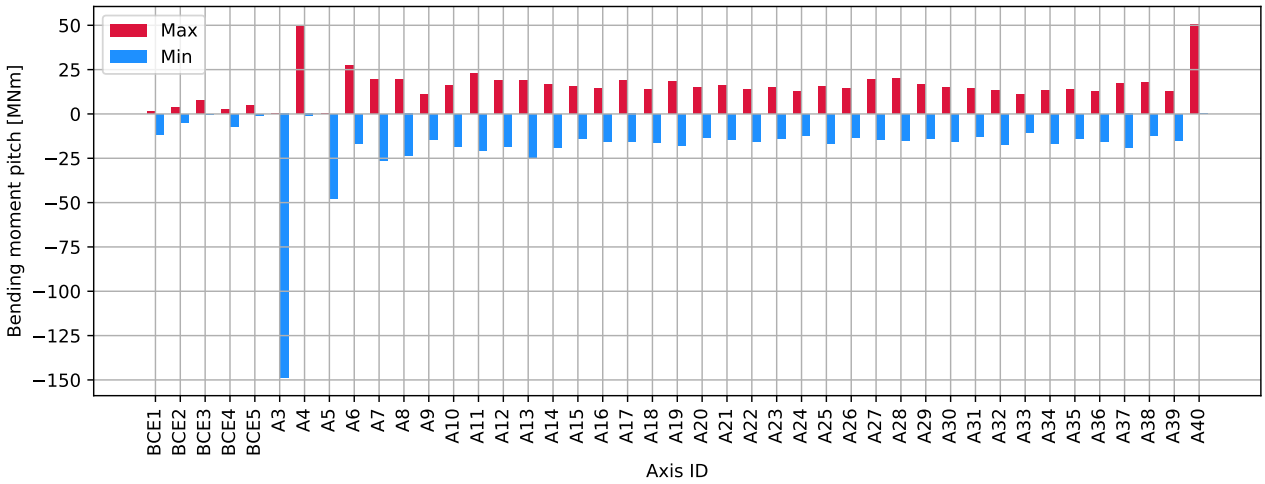

Figure 4.160: DH A16-A17 0deg - columns top : Bending moment pitch [MNm]

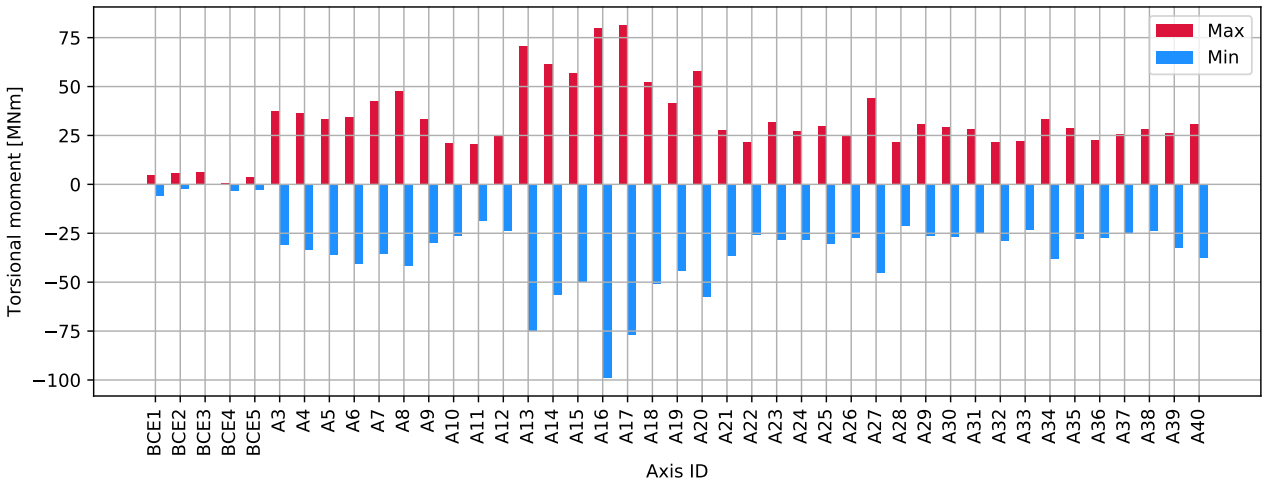

Figure 4.161: DH A16-A17 0deg - columns top : Torsional moment [MNm]

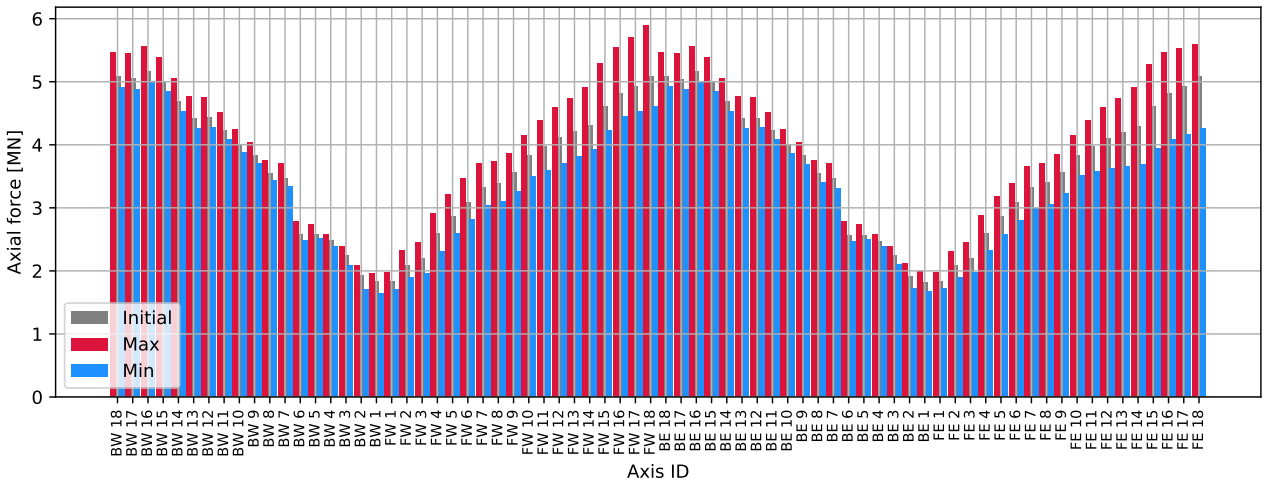

Figure 4.162: DH A16-A17 0deg - cables : Axial force [MN]

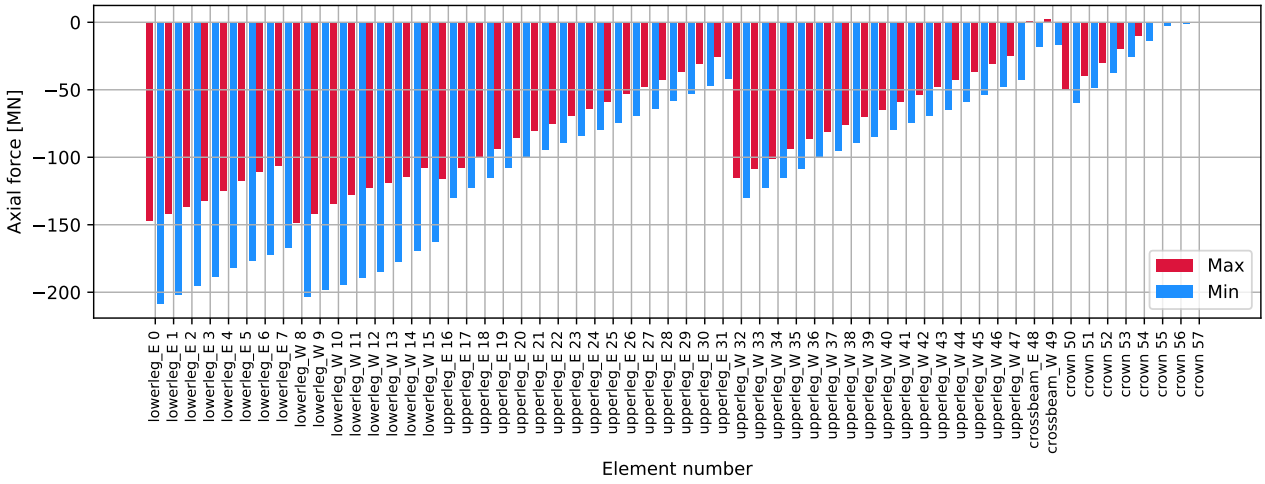

Figure 4.163: DH A16-A17 0deg - tower: Axial force [MN]

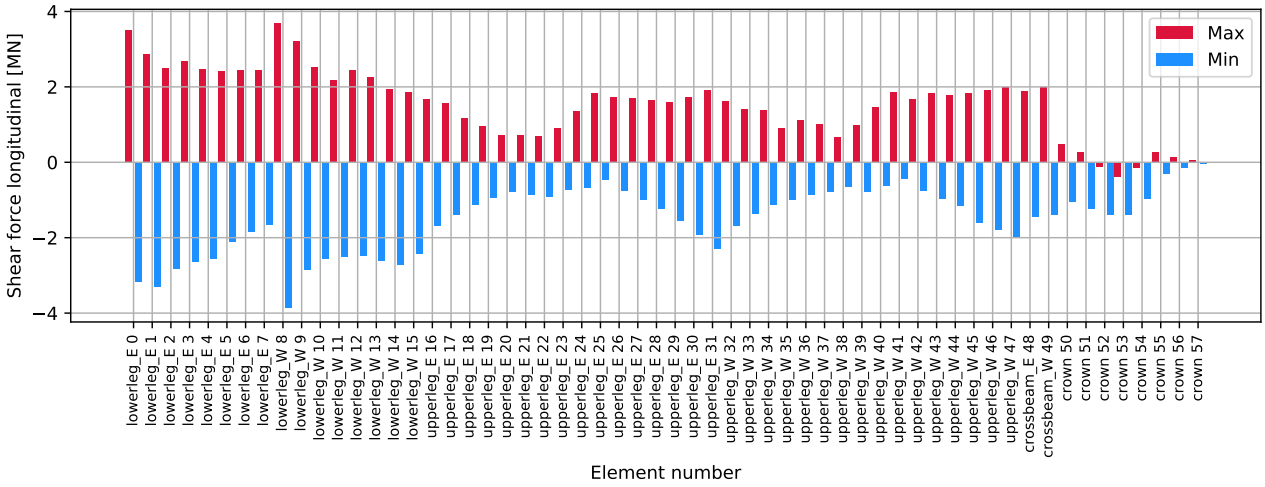

Figure 4.164: DH A16-A17 0deg - tower: Shear force longitudinal [MN]

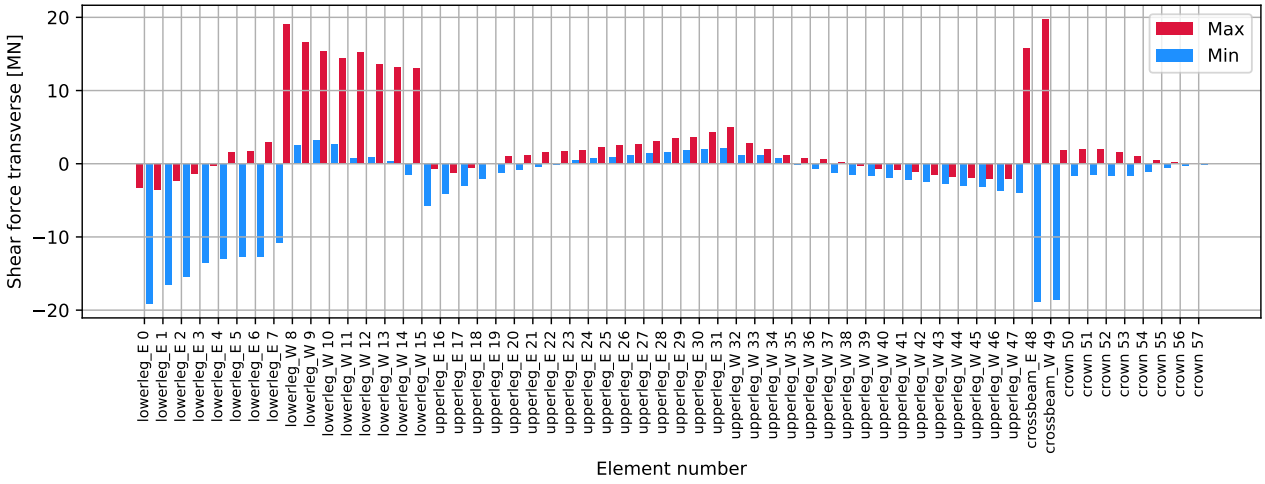

Figure 4.165: DH A16-A17 0deg - tower: Shear force transverse [MN]

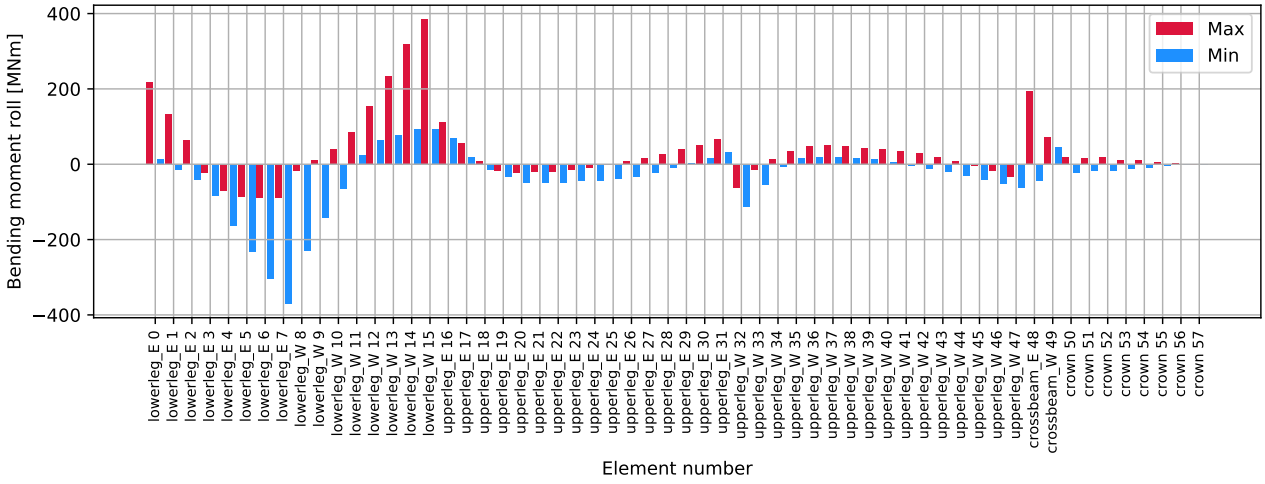

Figure 4.166: DH A16-A17 0deg - tower: Bending moment roll [MNm]

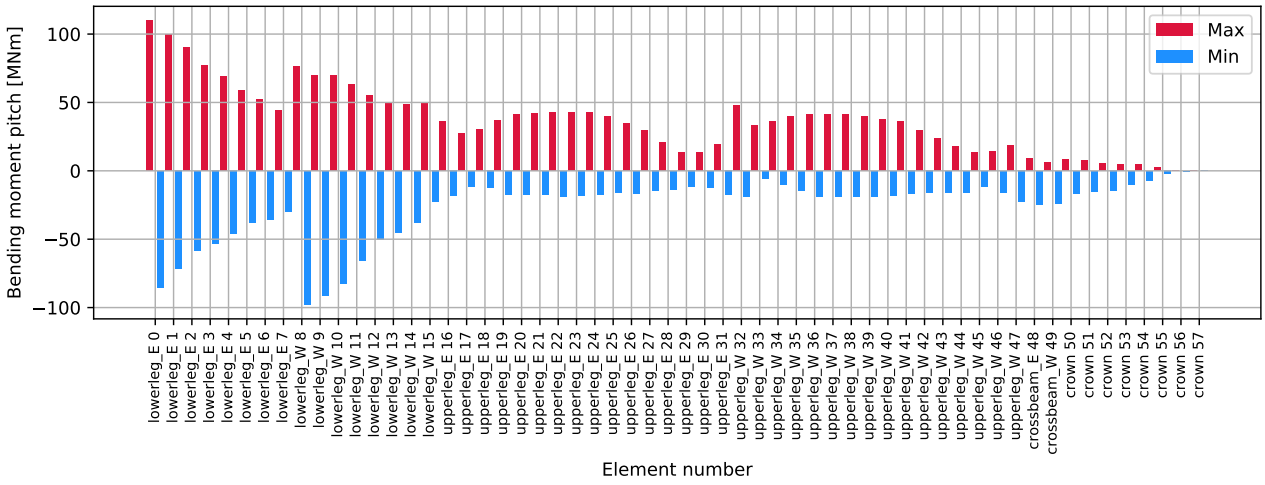

Figure 4.167: DH A16-A17 0deg - tower: Bending moment pitch [MNm]

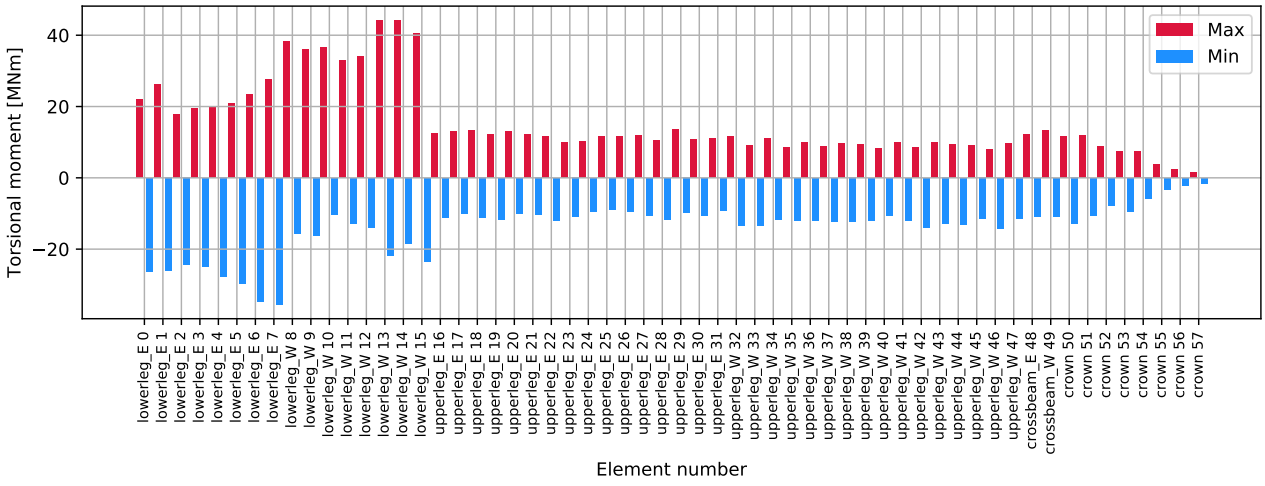

Figure 4.168: DH A16-A17 0deg - tower: Torsional moment [MNm]

4.4.3 Time series

Note : Time series are filtered using a Saviotzky-Golay filter for increased readability of the time history plots. Hence, maximum values that occur due to a rapid vibration are not shown in the plots. For maximum values, refer to the tabulated data.
All elements are numbered from South to North, bottom to top

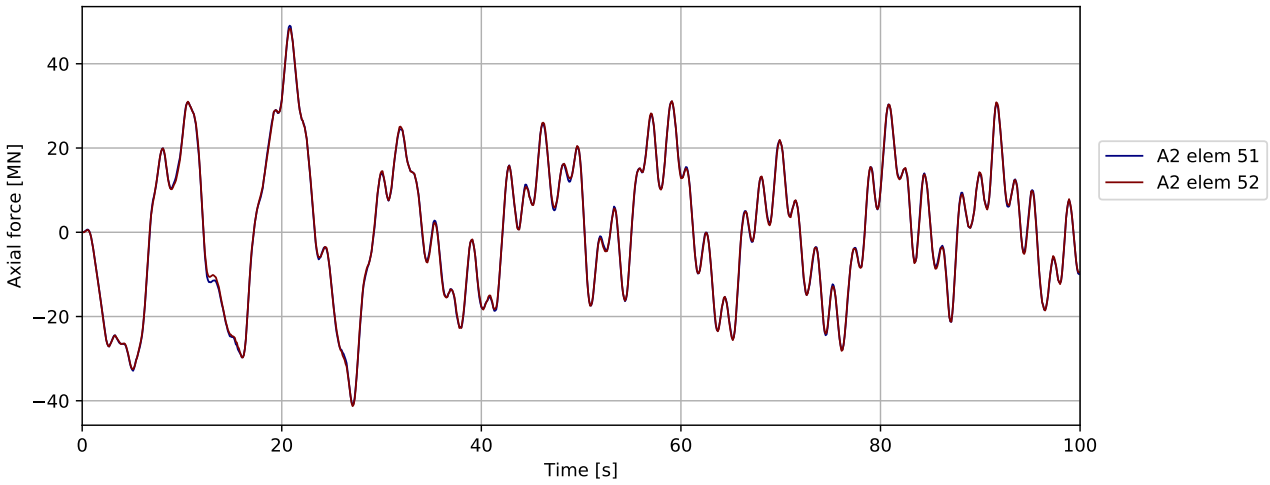

Figure 4.169: DH A16-A17 0deg - bridgegirder @ pylon: Axial force [MN]

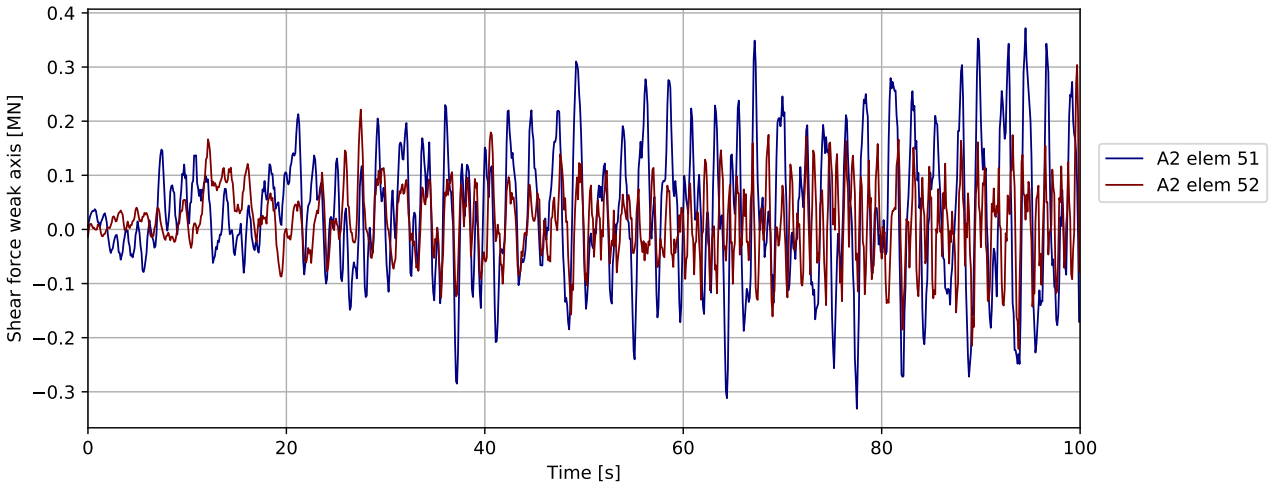

Figure 4.170: DH A16-A17 0deg - bridgegirder @ pylon: Shear force weak axis [MN]

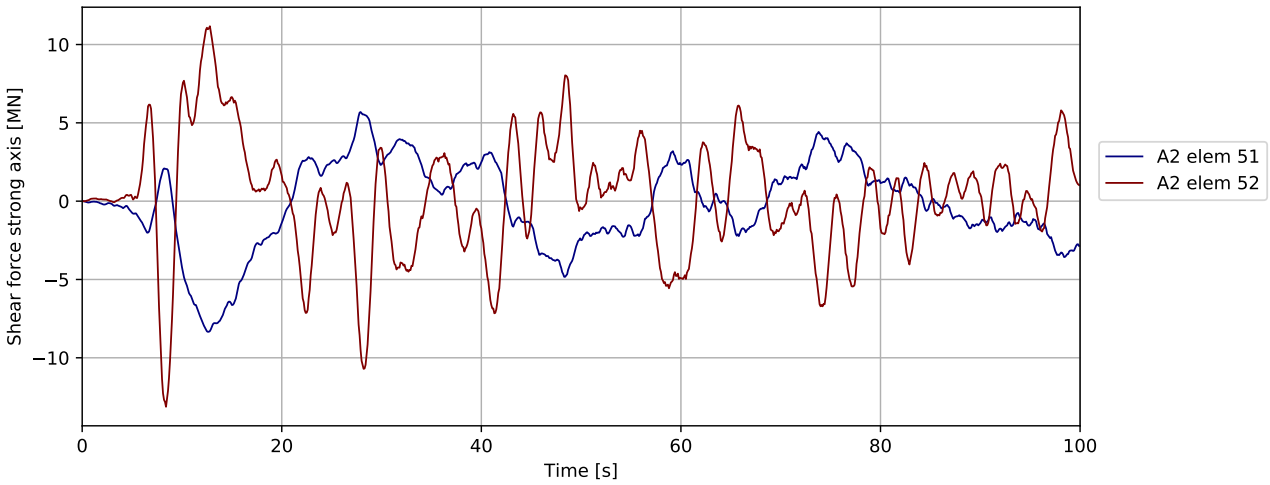

Figure 4.171: DH A16-A17 0deg - bridgegirder @ pylon: Shear force strong axis [MN]

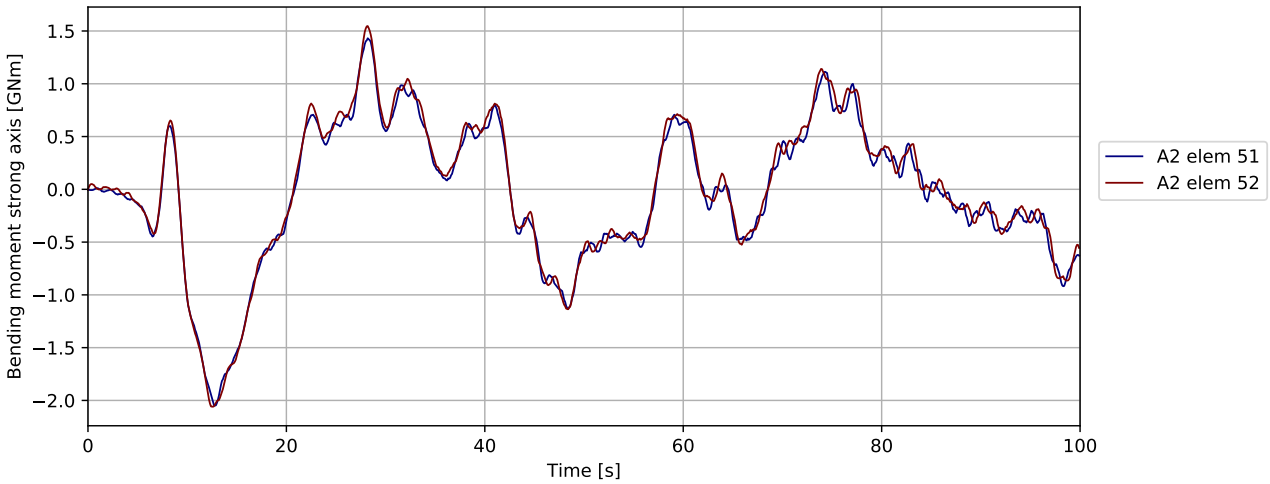

Figure 4.172: DH A16-A17 0deg - bridgegirder @ pylon: Bending moment strong axis [GNm]

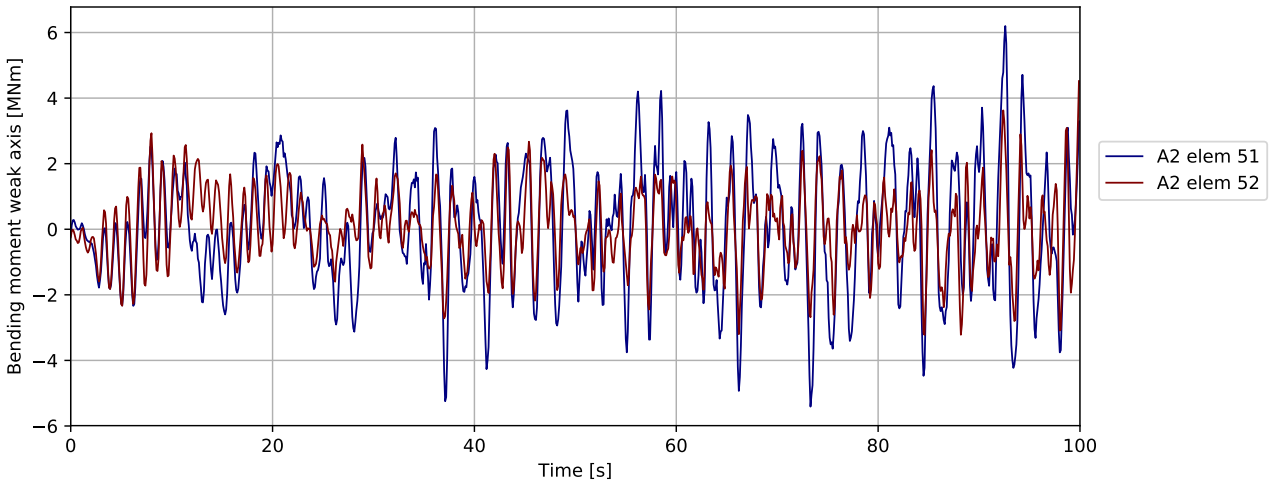

Figure 4.173: DH A16-A17 0deg - bridgegirder @ pylon: Bending moment weak axis [MNm]

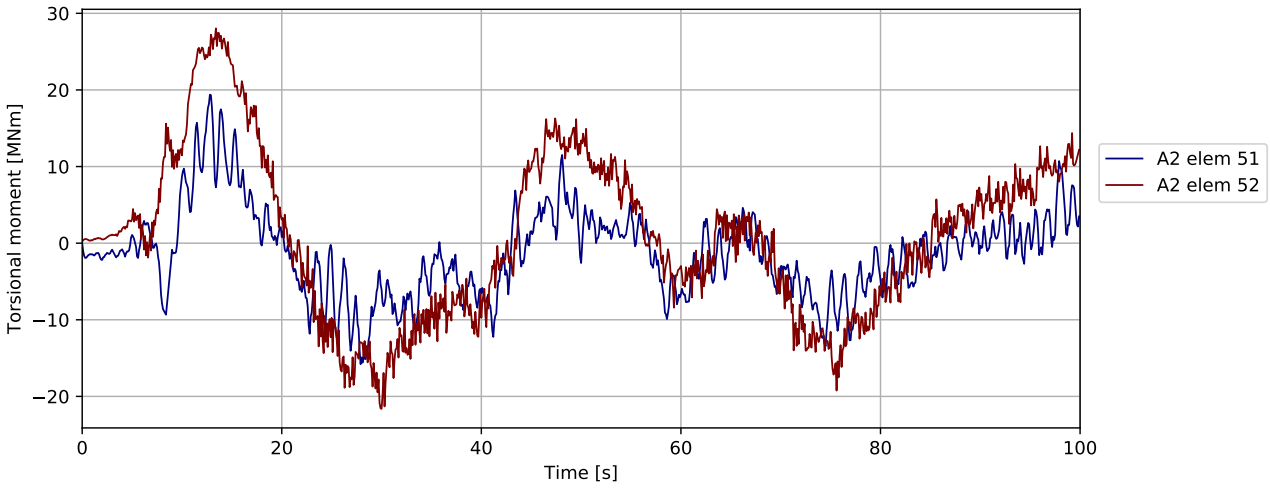

Figure 4.174: DH A16-A17 0deg - bridgegirder @ pylon: Torsional moment [MNm]

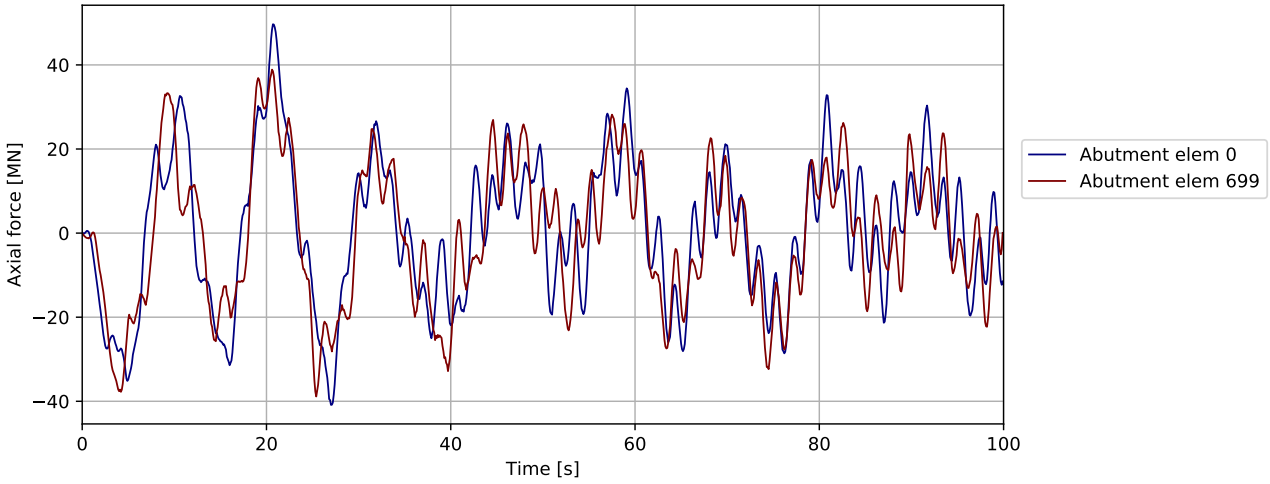

Figure 4.175: DH A16-A17 0deg - bridgegirder @abutments: Axial force [MN]

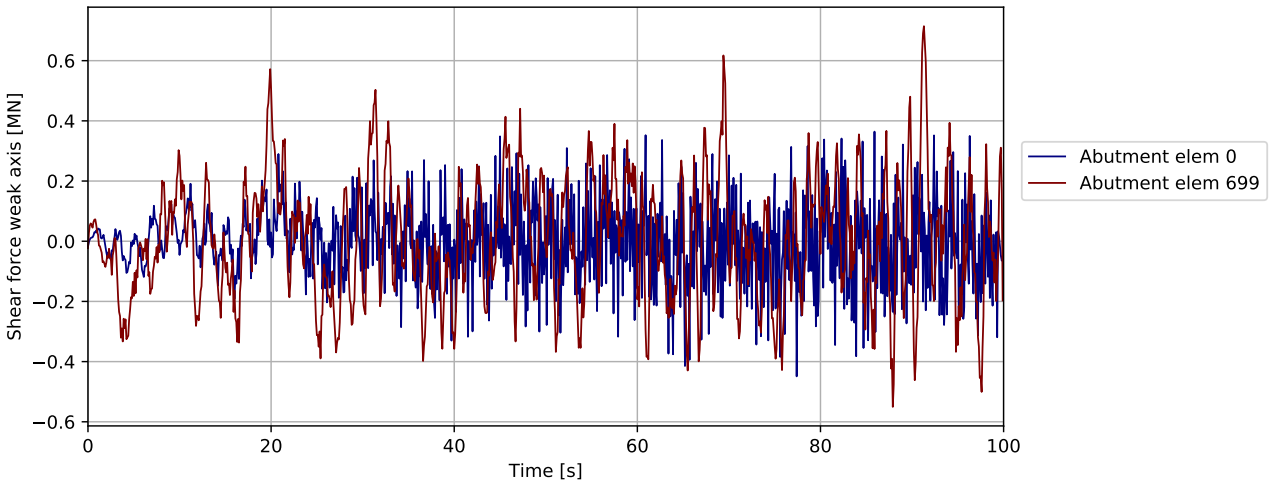

Figure 4.176: DH A16-A17 0deg - bridgegirder @abutments: Shear force weak axis [MN]

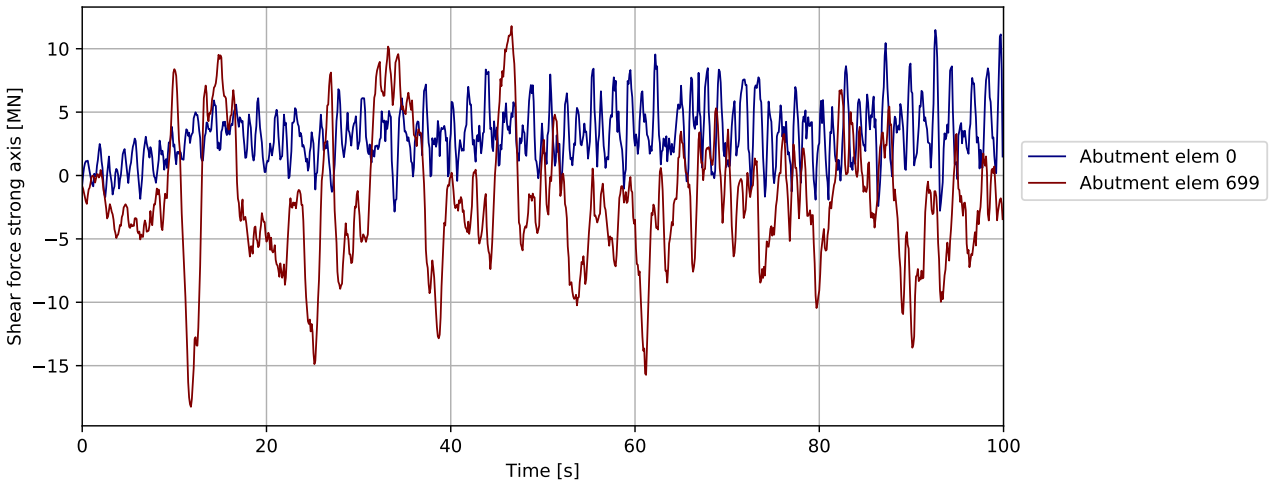

Figure 4.177: DH A16-A17 0deg - bridgegirder @abutments: Shear force strong axis [MN]

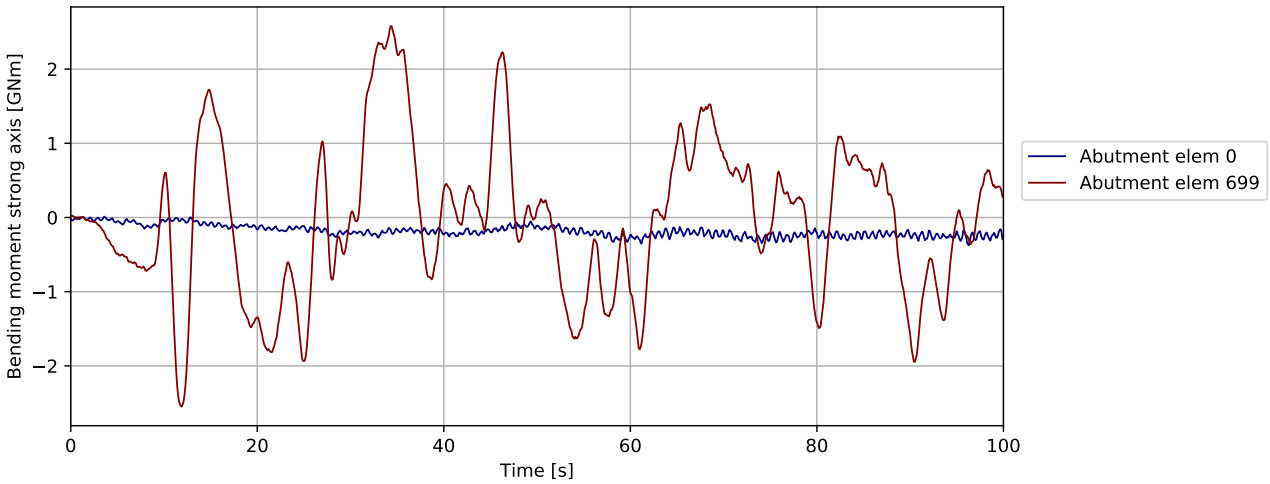

Figure 4.178: DH A16-A17 0deg - bridgegirder @abutments: Bending moment strong axis [GNm]

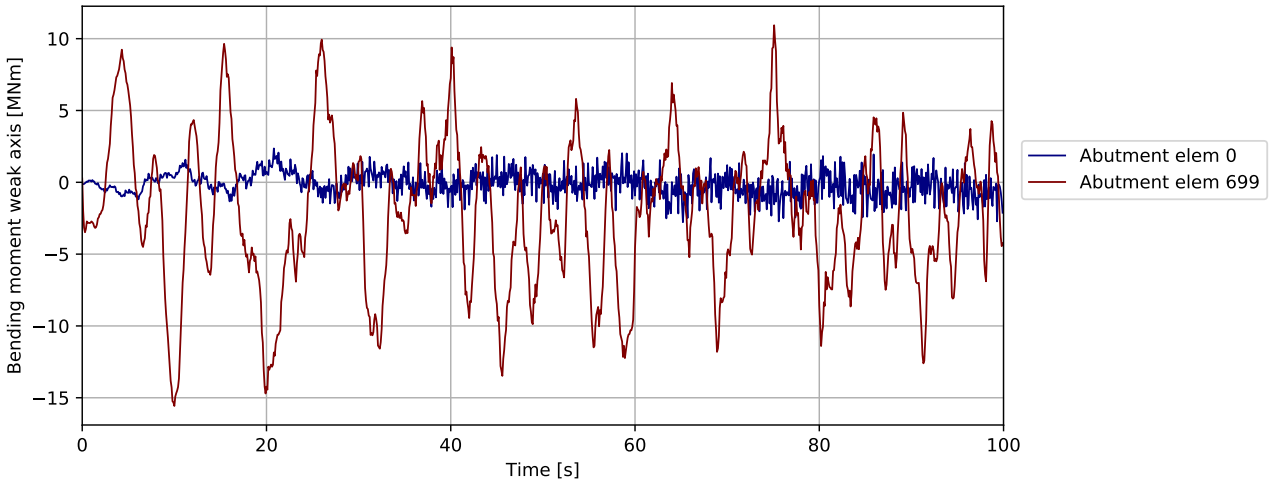

Figure 4.179: DH A16-A17 0deg - bridgegirder @abutments: Bending moment weak axis [MNm]

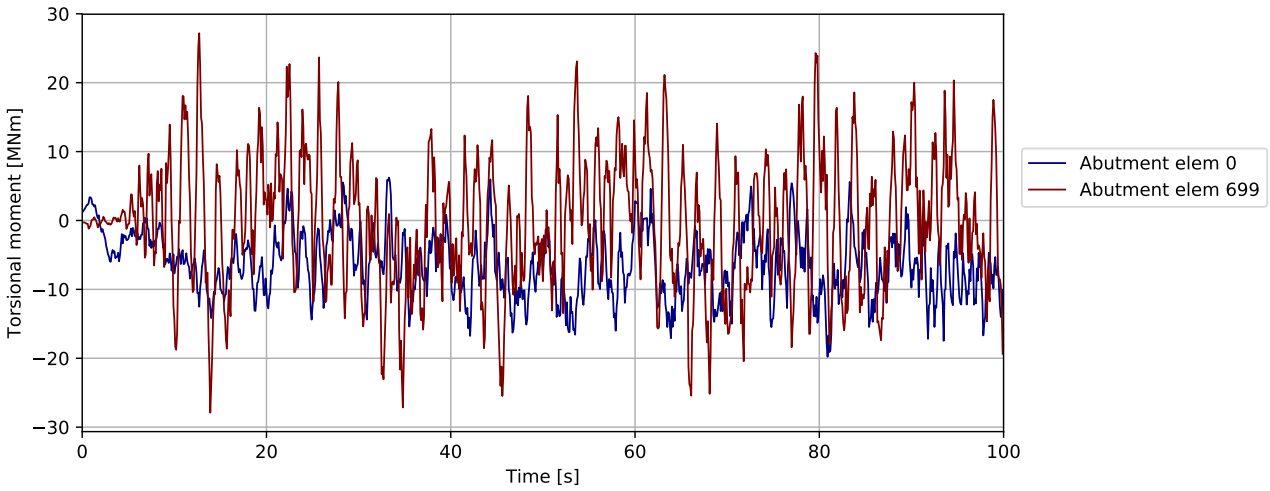

Figure 4.180: DH A16-A17 0deg - bridgegirder @abutments: Torsional moment [MNm]

Note : Compressive spring force is negative

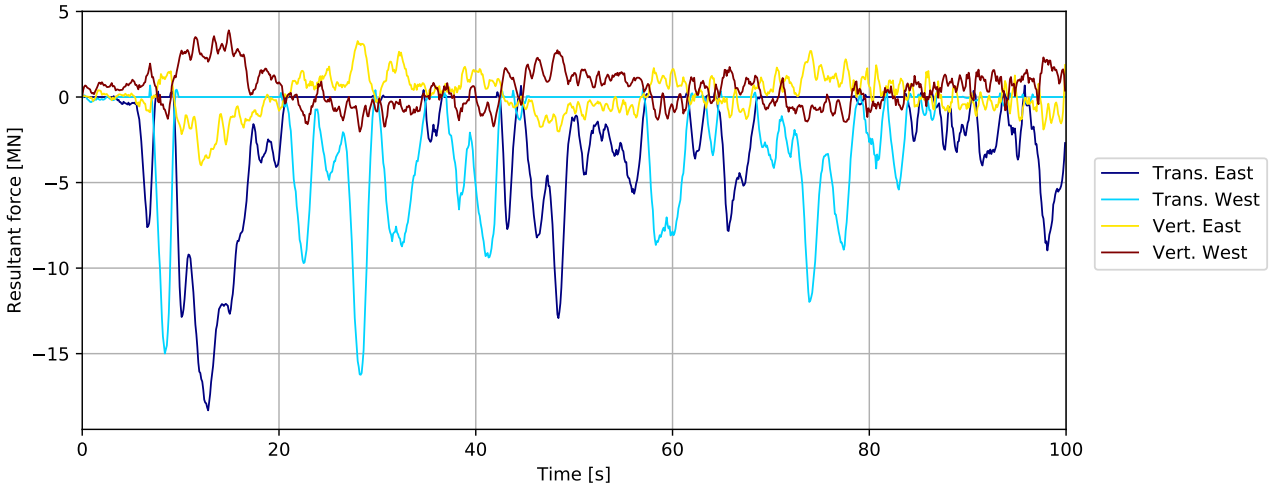

Figure 4.181: DH A16-A17 0deg - bridgegirder supports in tower: Resultant force [MN]

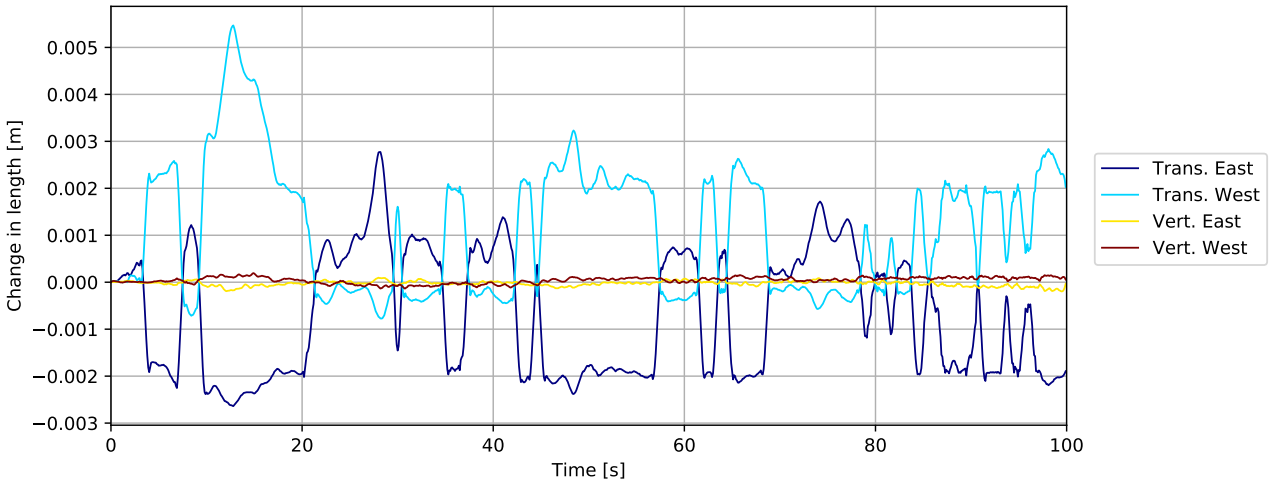

Figure 4.182: DH A16-A17 0deg - bridgegirder supports in tower: Change in length [m]

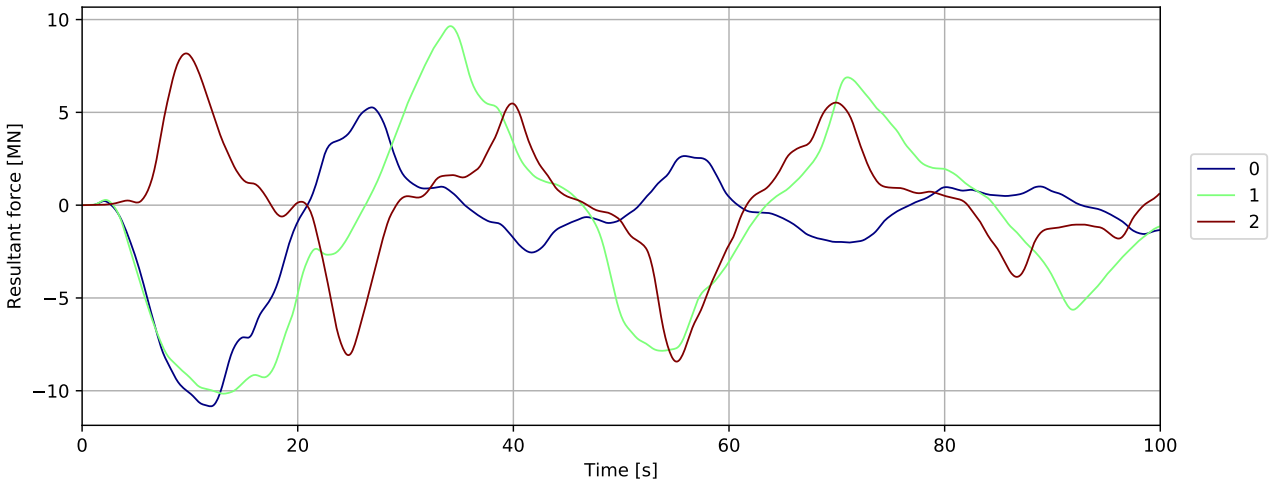

Figure 4.183: Mooring force

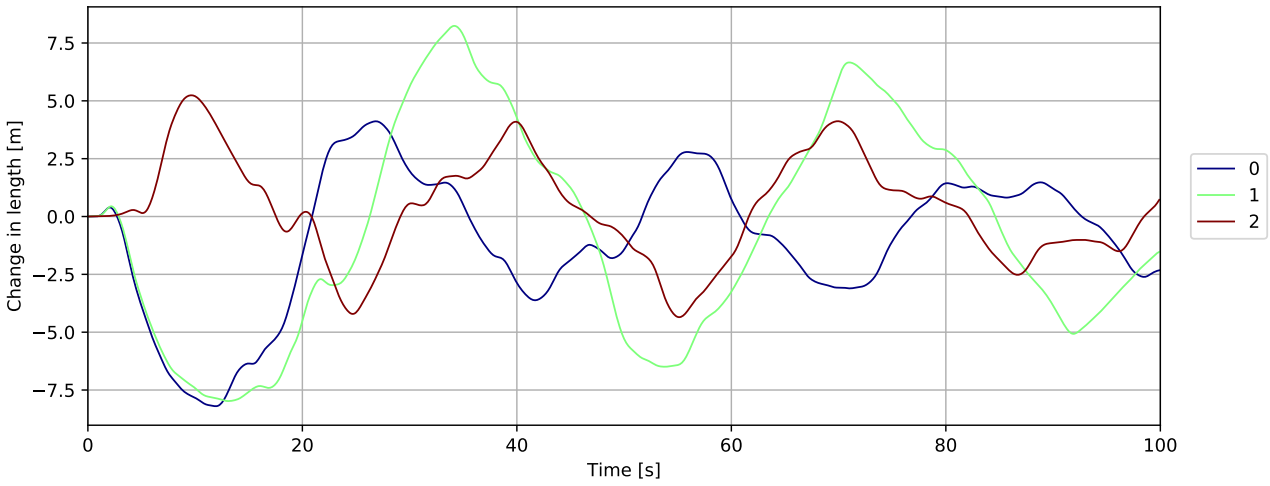

Figure 4.184: Mooring displacement

4.5 Deck house A20-A21 0deg

4.5.1 Overall response

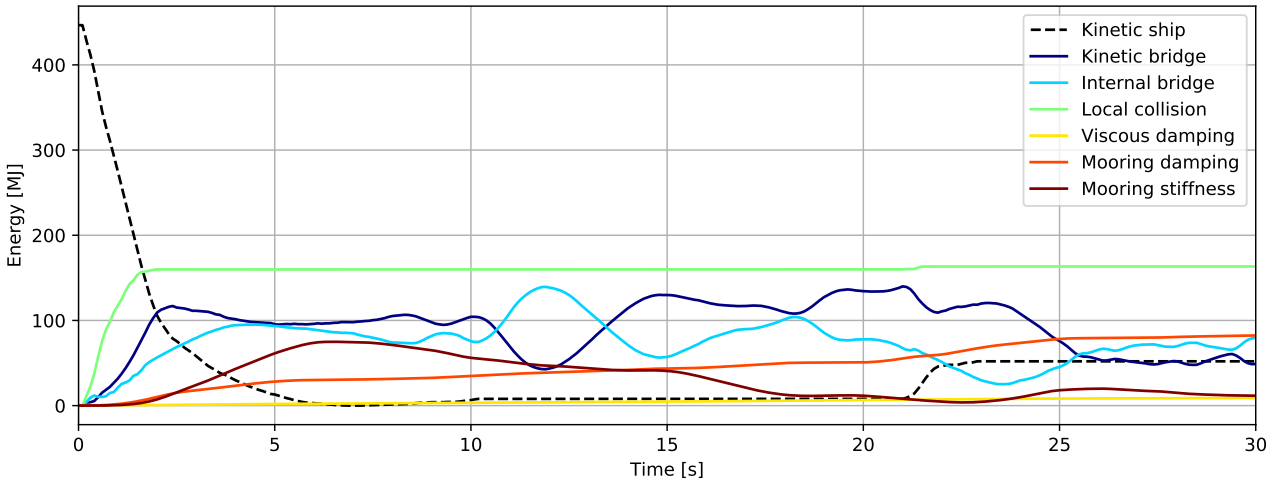

Figure 4.185: Energy [MJ] - initial phase

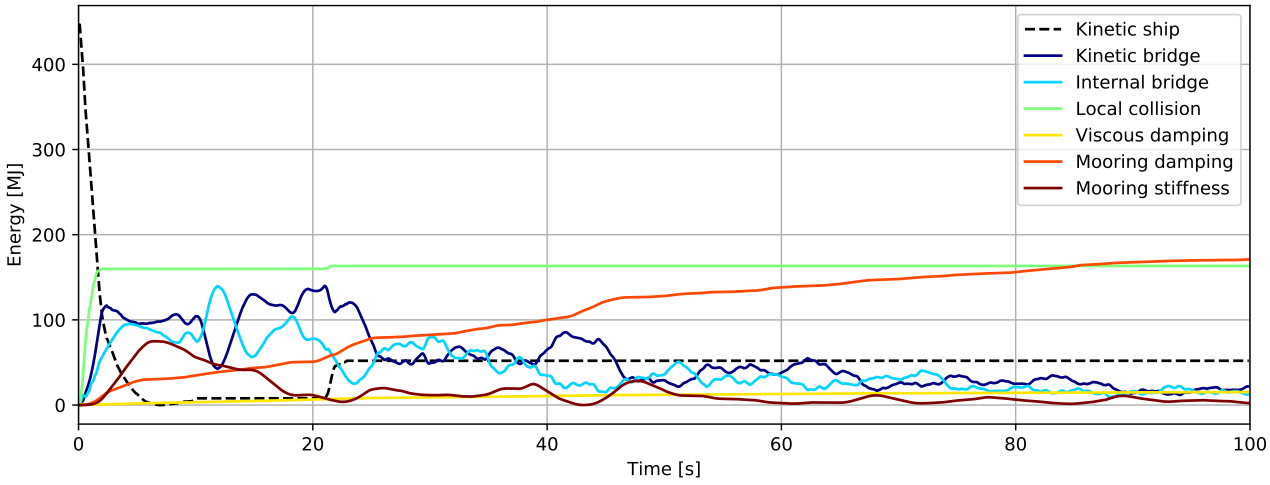

Figure 4.186: Energy [MJ]

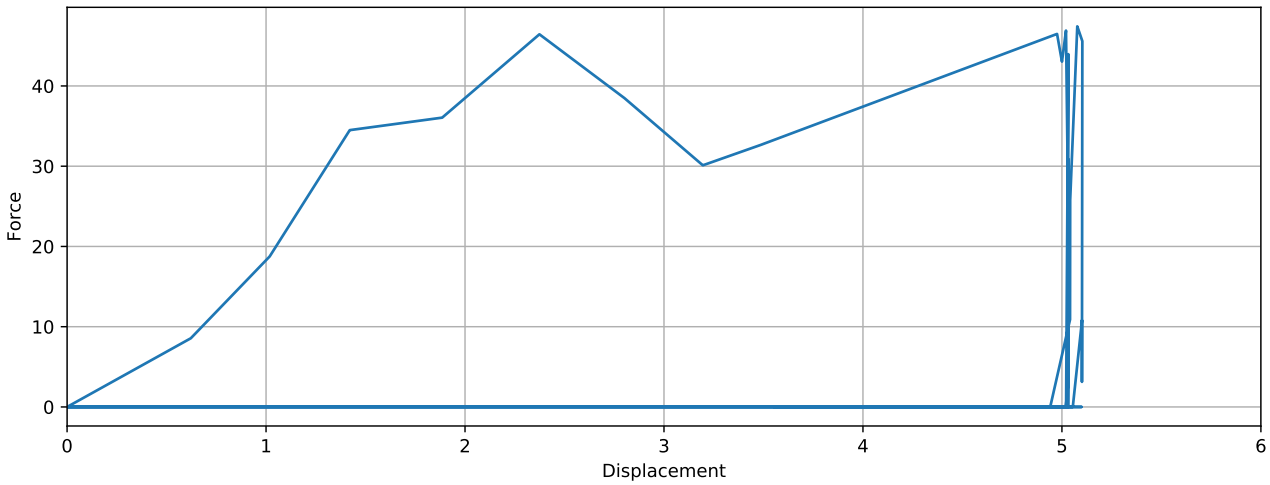

Figure 4.187: Simulated local collision force-displacement

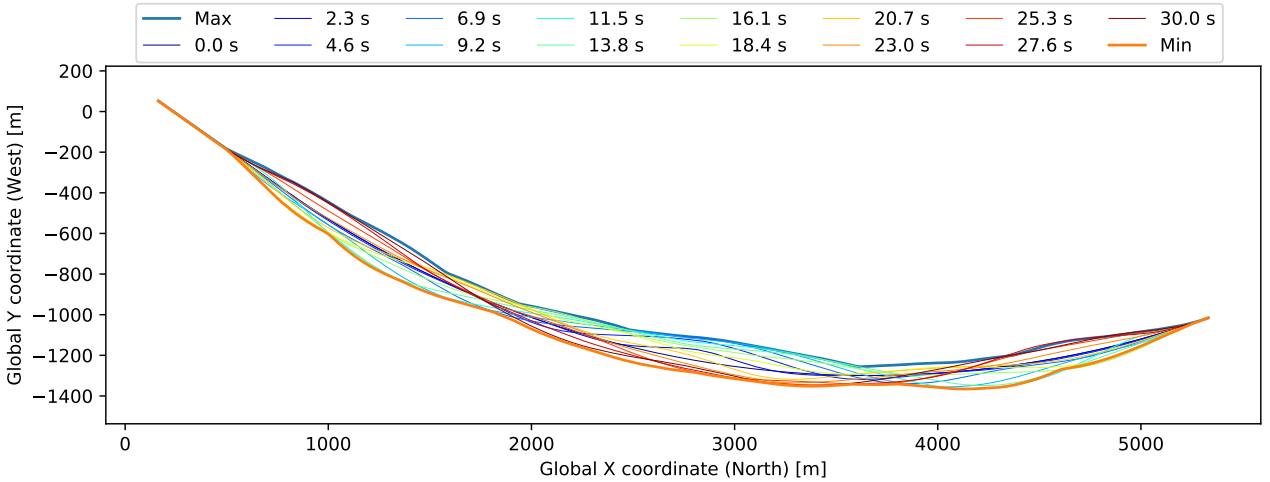

Figure 4.188: Bridgegirder deflection (10x displacment scaling)

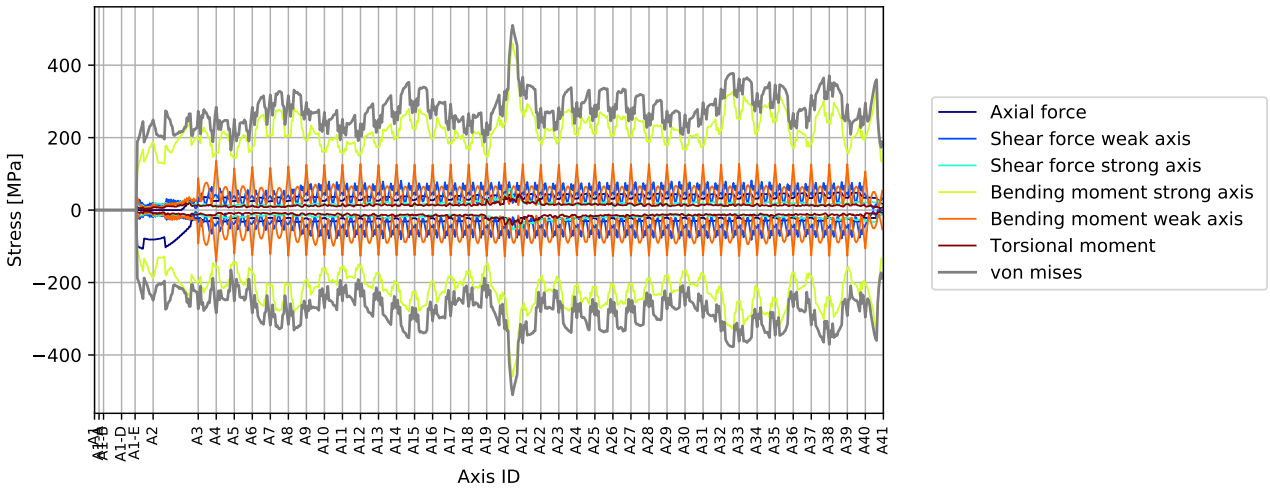

Figure 4.189: Stress envelope from all force components

4.5.2 Envelope plots

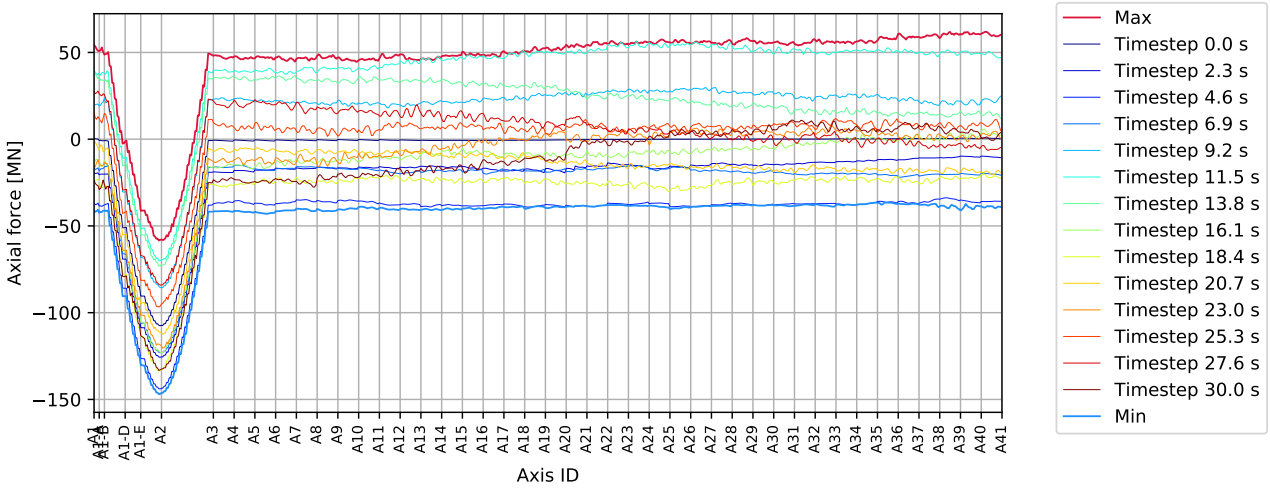

Figure 4.190: DH A20-A21 0deg - bridgegirder : Axial force [MN]

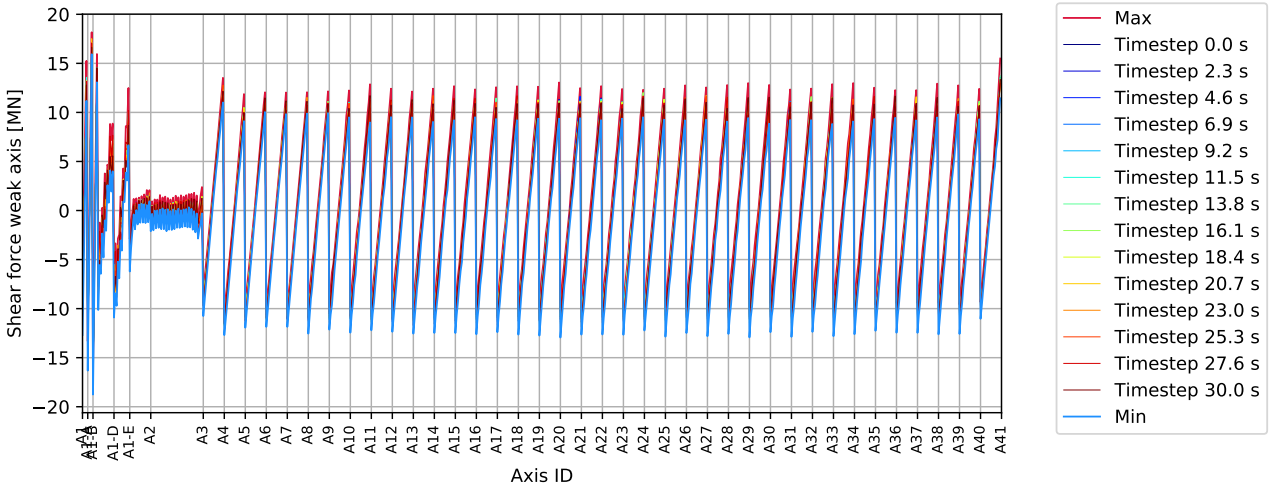

Figure 4.191: DH A20-A21 0deg - bridgegirder : Shear force weak axis [MN]

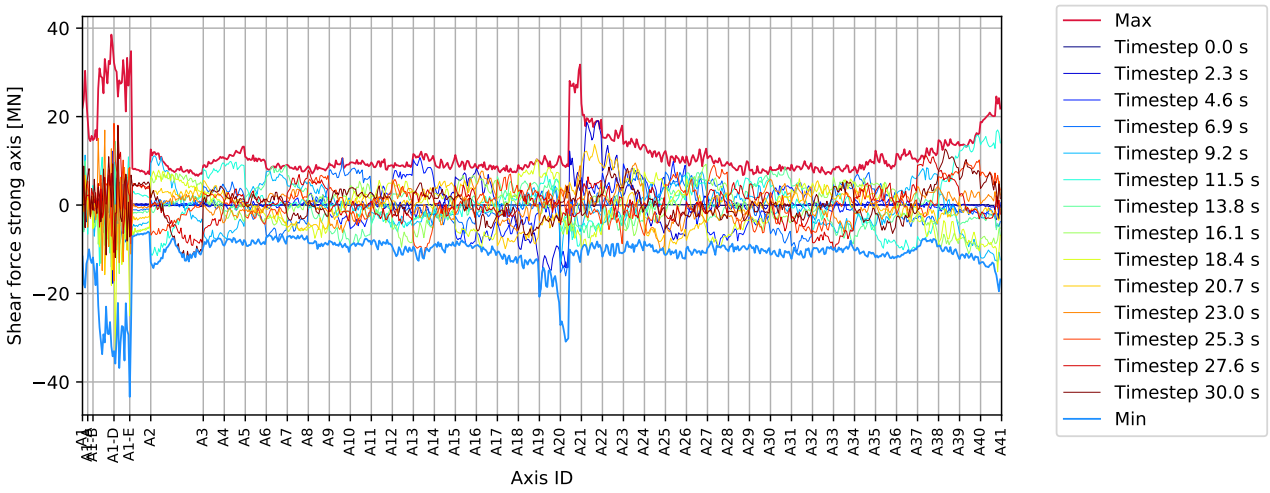

Figure 4.192: DH A20-A21 0deg - bridgegirder : Shear force strong axis [MN]

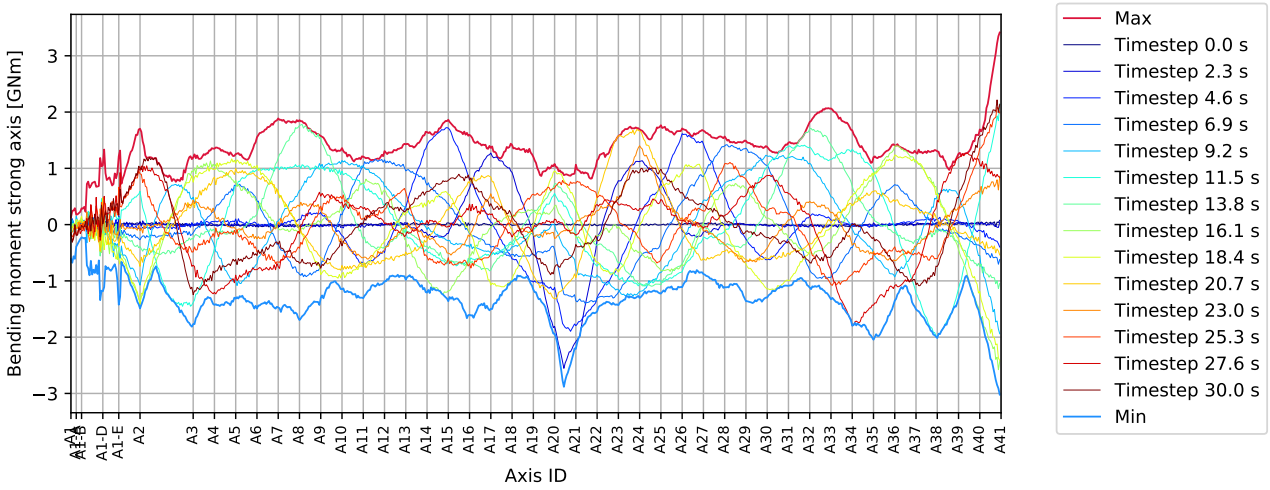

Figure 4.193: DH A20-A21 0deg - bridgegirder : Bending moment strong axis [GNm]

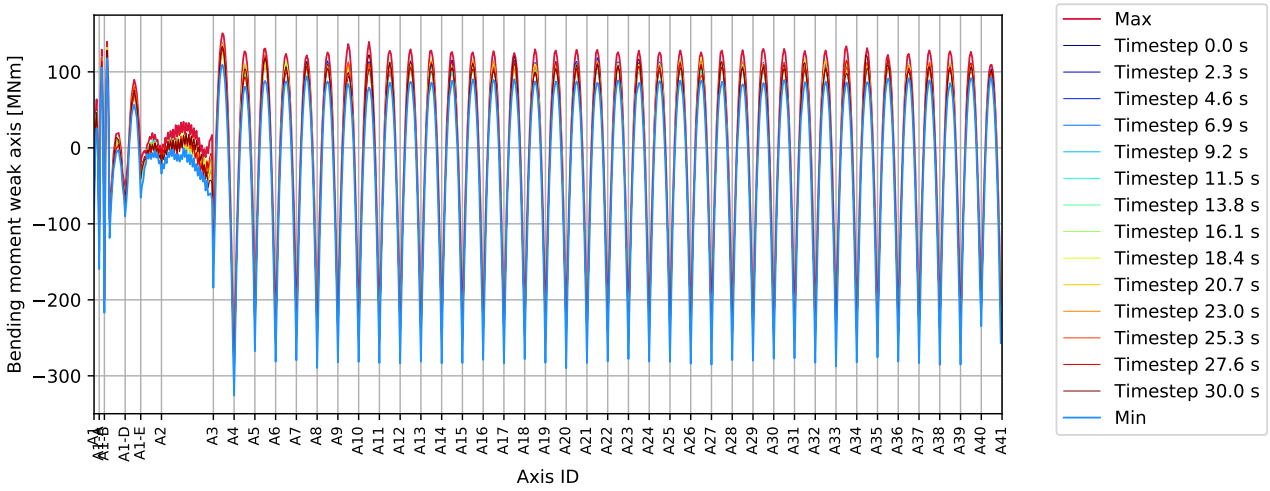

Figure 4.194: DH A20-A21 0deg - bridgegirder : Bending moment weak axis [MNm]

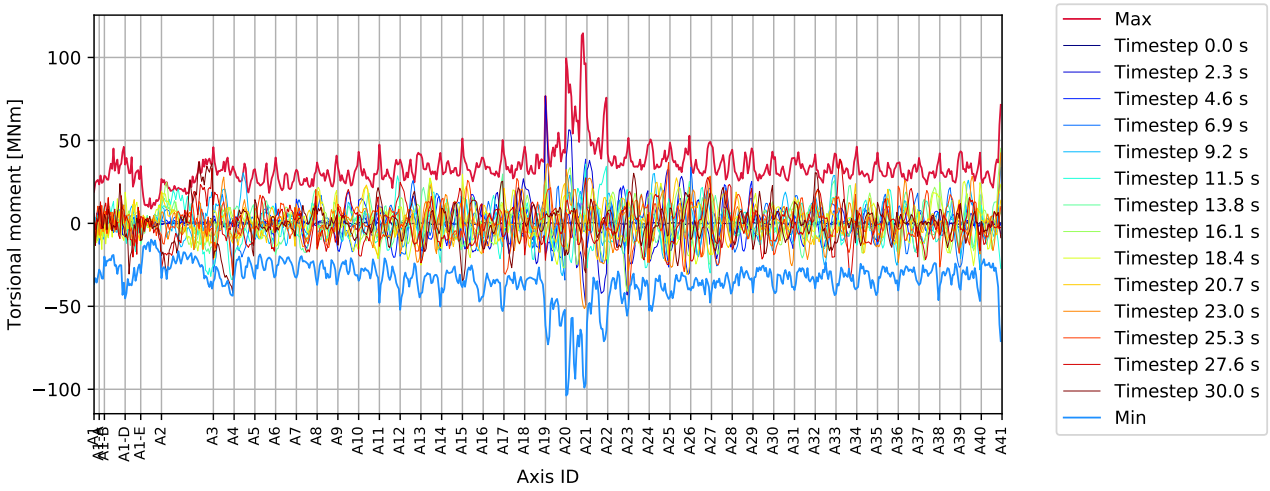

Figure 4.195: DH A20-A21 0deg - bridgegirder : Torsional moment [MNm]

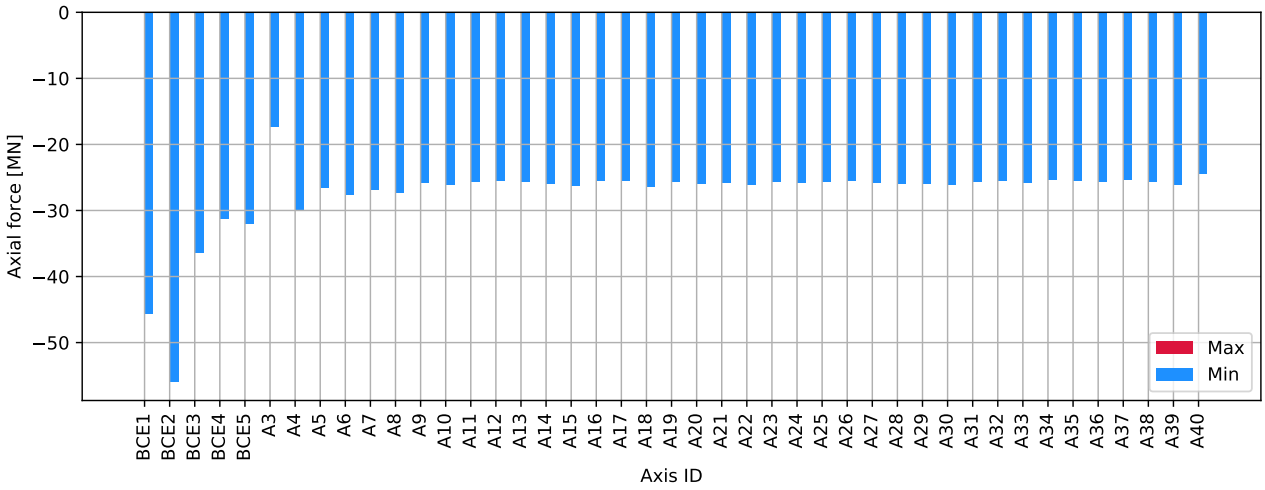

Figure 4.196: DH A20-A21 0deg - columns bottom : Axial force [MN]

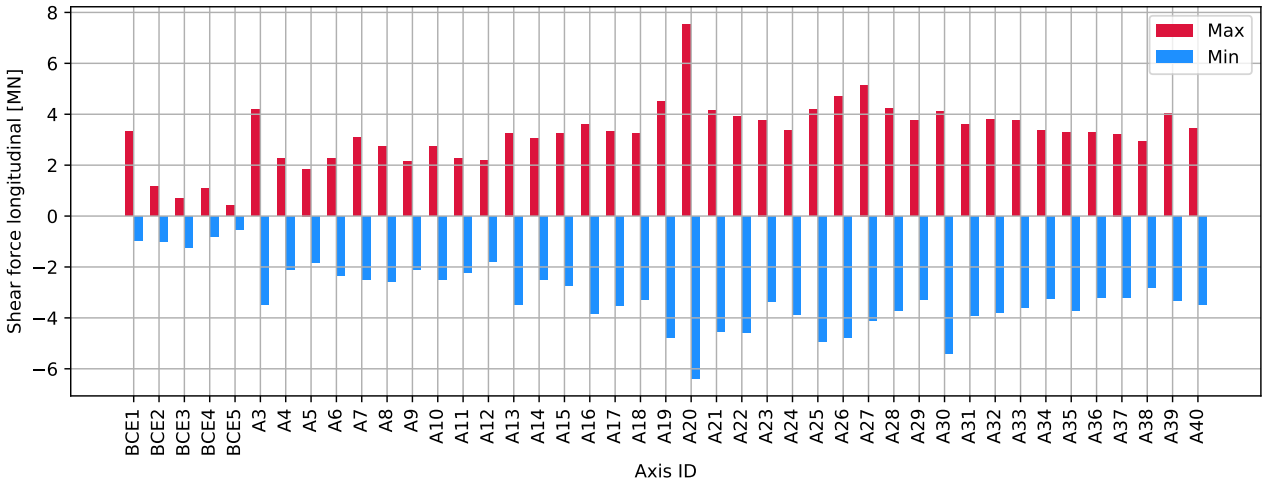

Figure 4.197: DH A20-A21 0deg - columns bottom : Shear force longitudinal [MN]

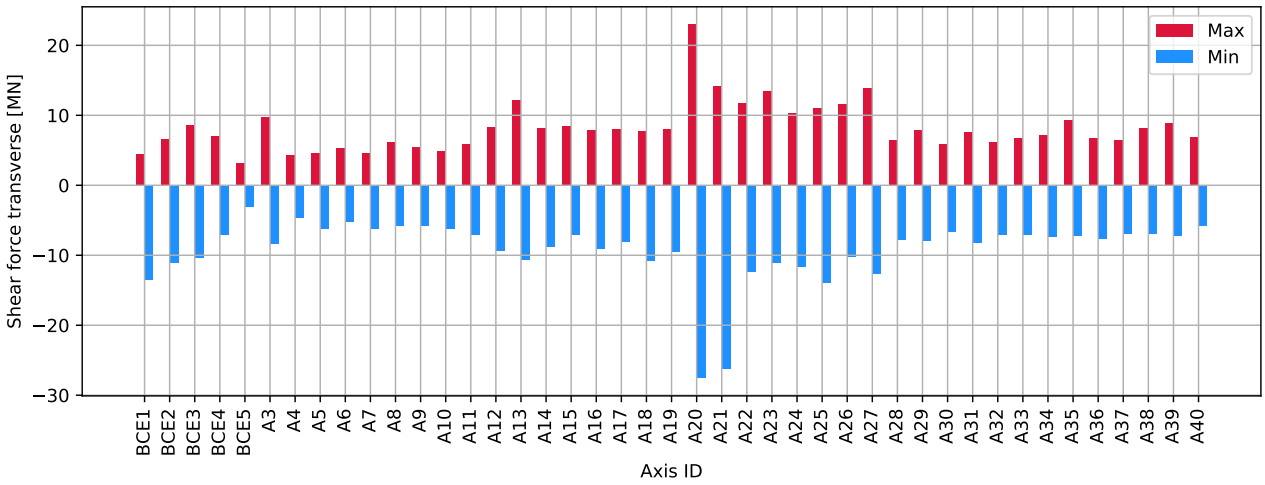

Figure 4.198: DH A20-A21 0deg - columns bottom : Shear force transverse [MN]

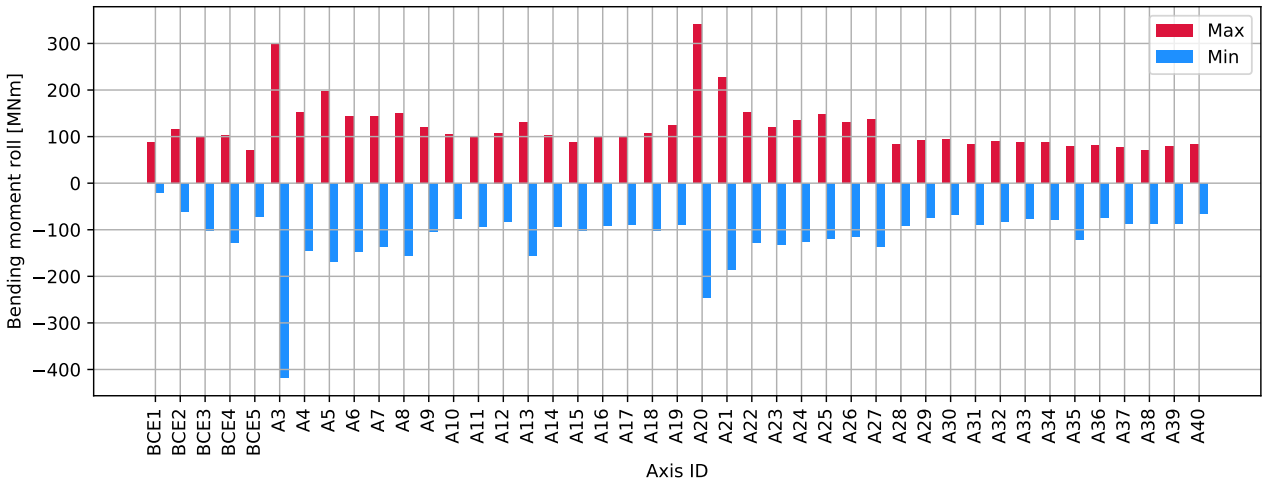

Figure 4.199: DH A20-A21 0deg - columns bottom : Bending moment roll [MNm]

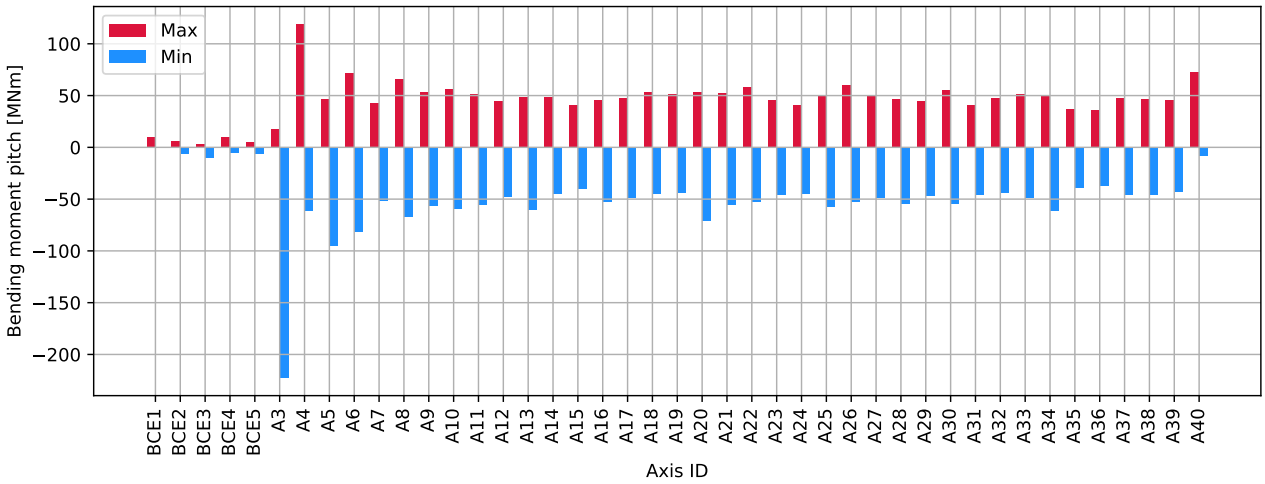

Figure 4.200: DH A20-A21 0deg - columns bottom : Bending moment pitch [MNm]

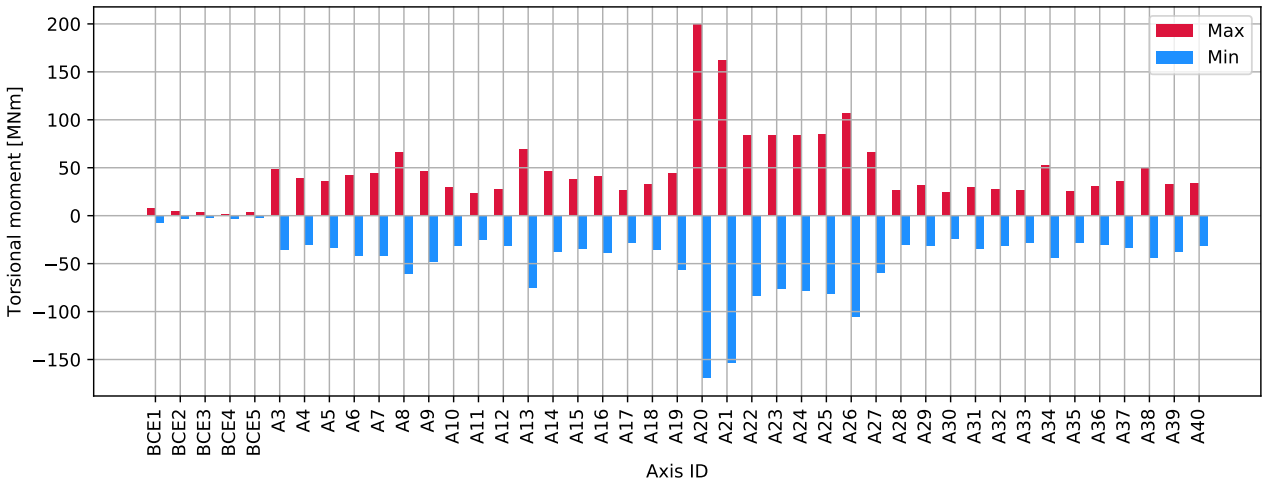

Figure 4.201: DH A20-A21 0deg - columns bottom : Torsional moment [MNm]

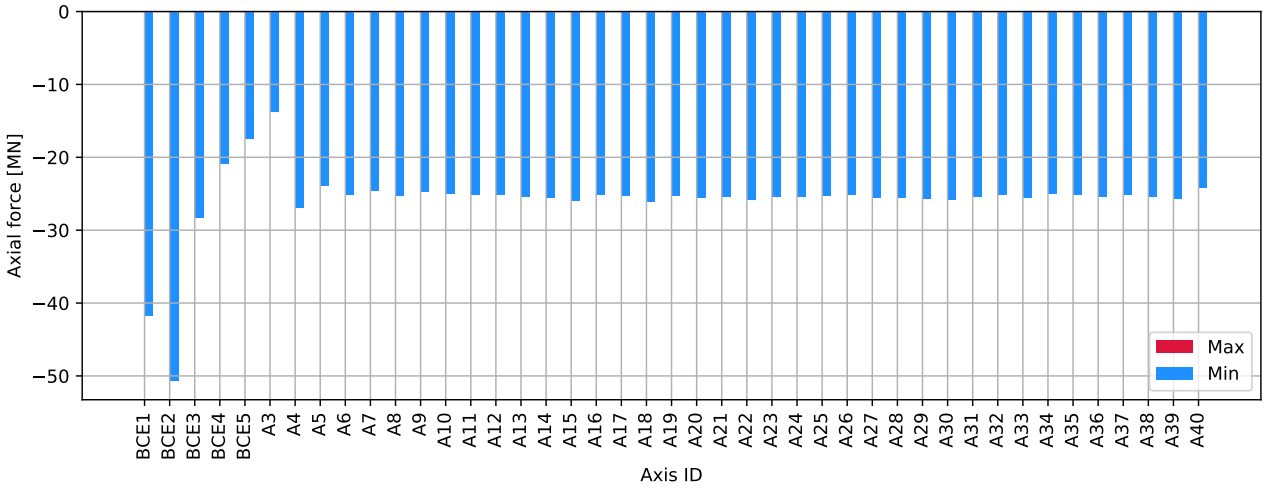

Figure 4.202: DH A20-A21 0deg - columns top : Axial force [MN]

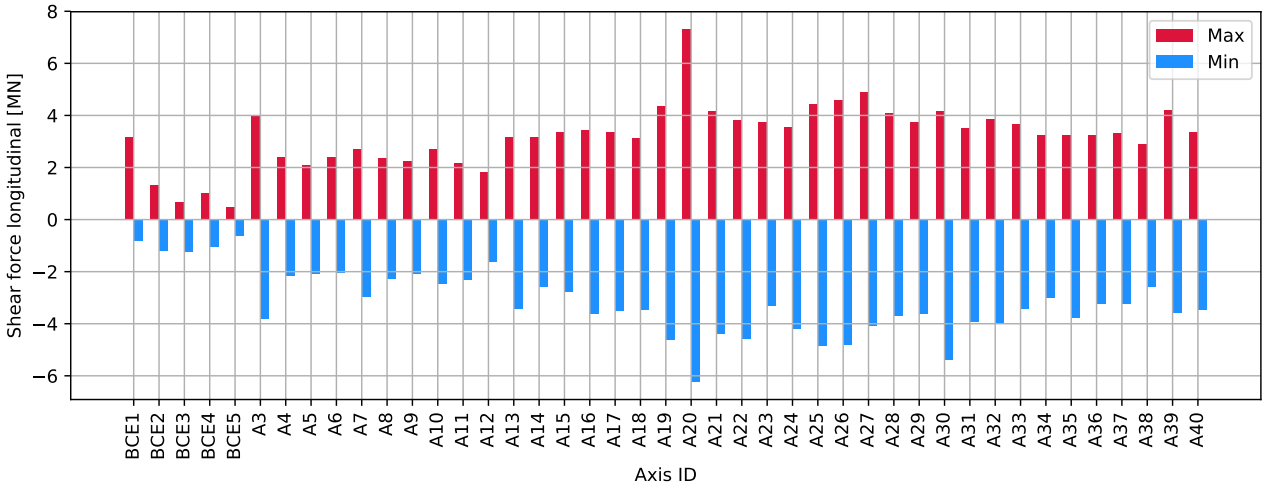

Figure 4.203: DH A20-A21 0deg - columns top : Shear force longitudinal [MN]

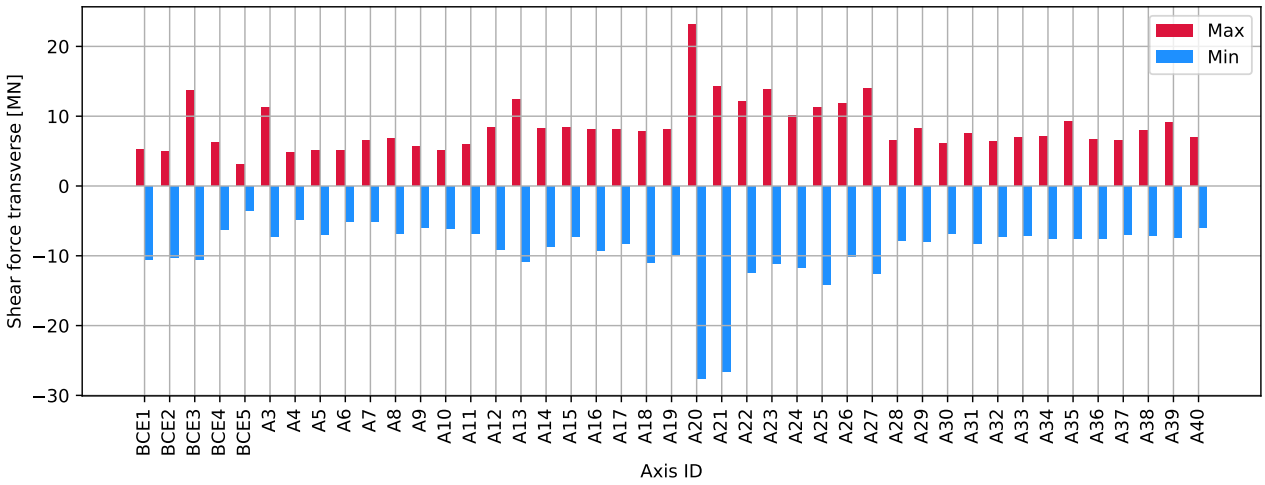

Figure 4.204: DH A20-A21 0deg - columns top : Shear force transverse [MN]

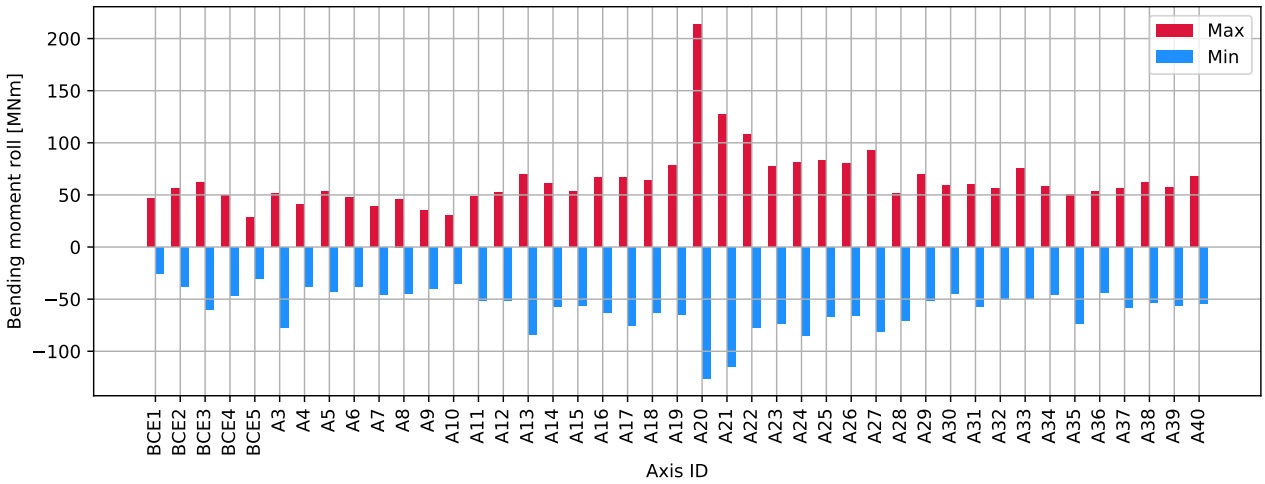

Figure 4.205: DH A20-A21 0deg - columns top : Bending moment roll [MNm]

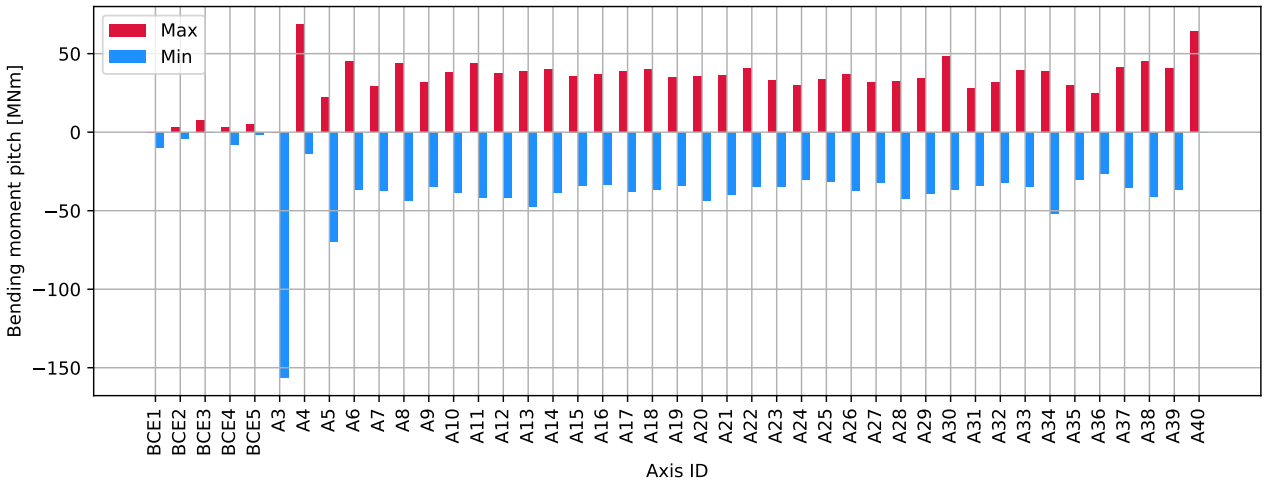

Figure 4.206: DH A20-A21 0deg - columns top : Bending moment pitch [MNm]

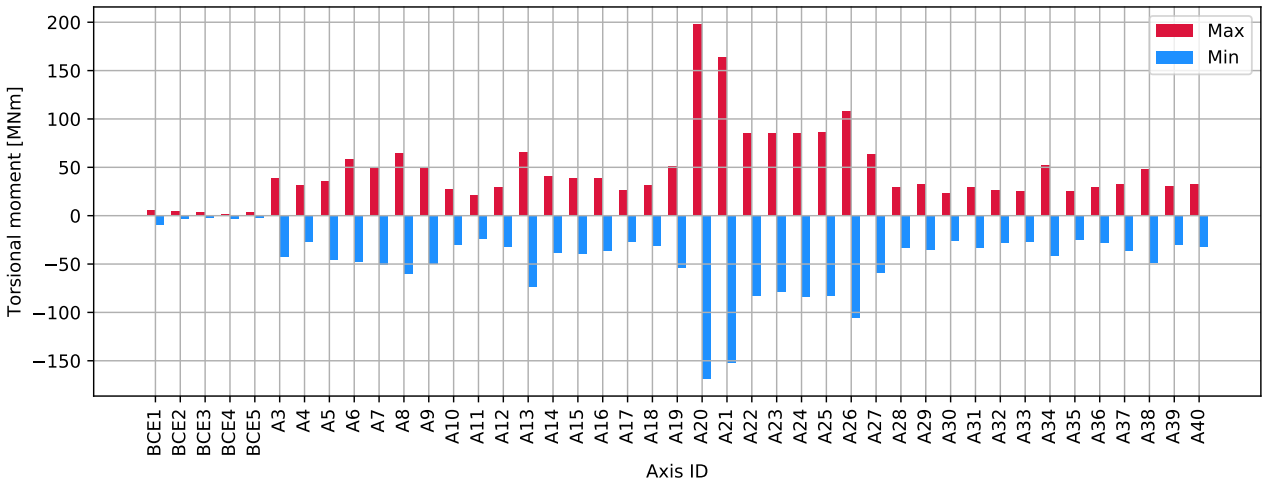

Figure 4.207: DH A20-A21 0deg - columns top : Torsional moment [MNm]

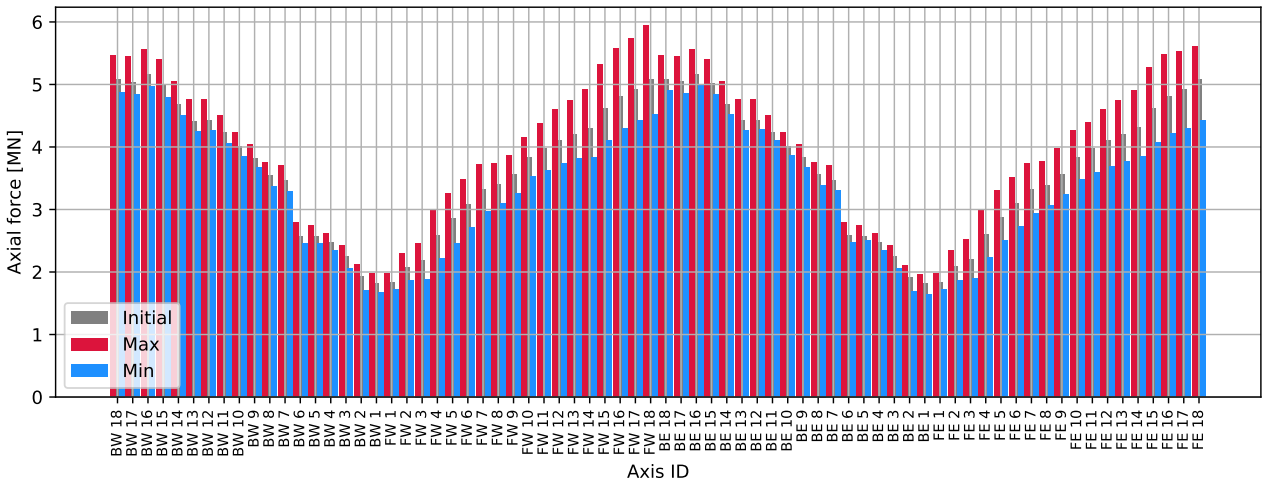

Figure 4.208: DH A20-A21 0deg - cables : Axial force [MN]

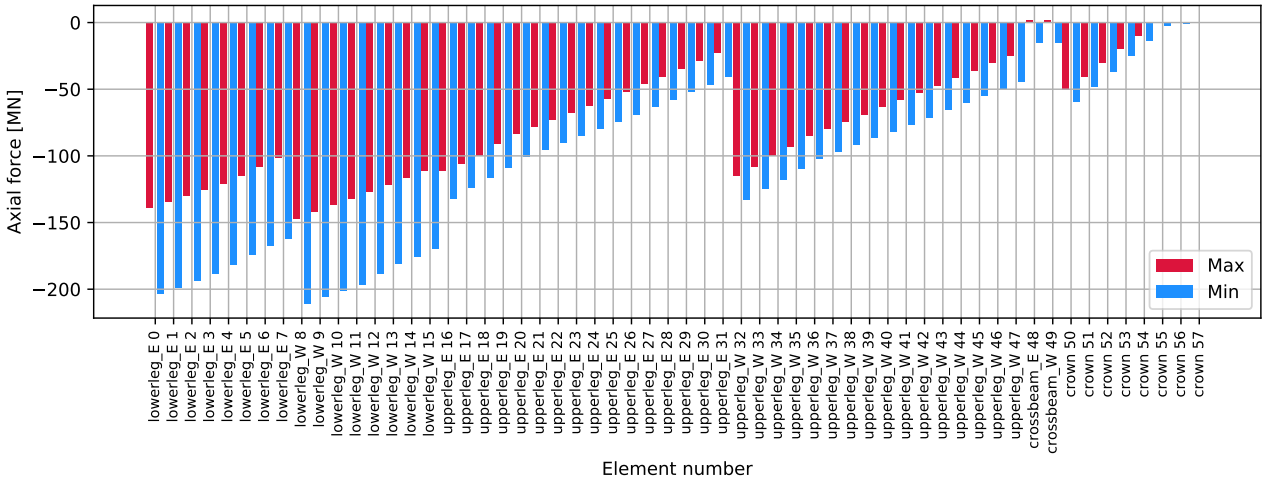

Figure 4.209: DH A20-A21 0deg - tower: Axial force [MN]

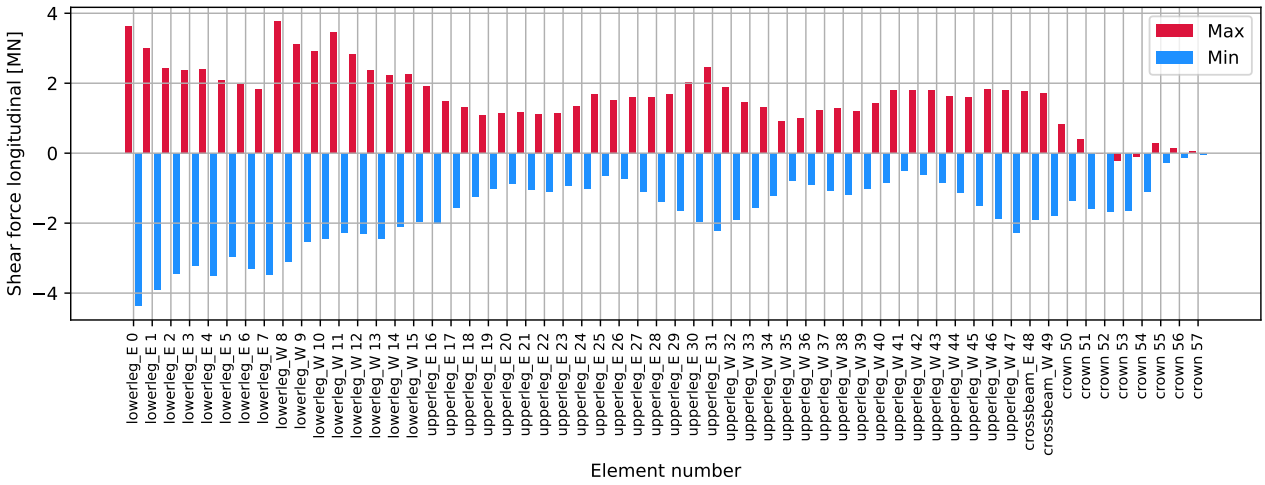

Figure 4.210: DH A20-A21 0deg - tower: Shear force longitudinal [MN]

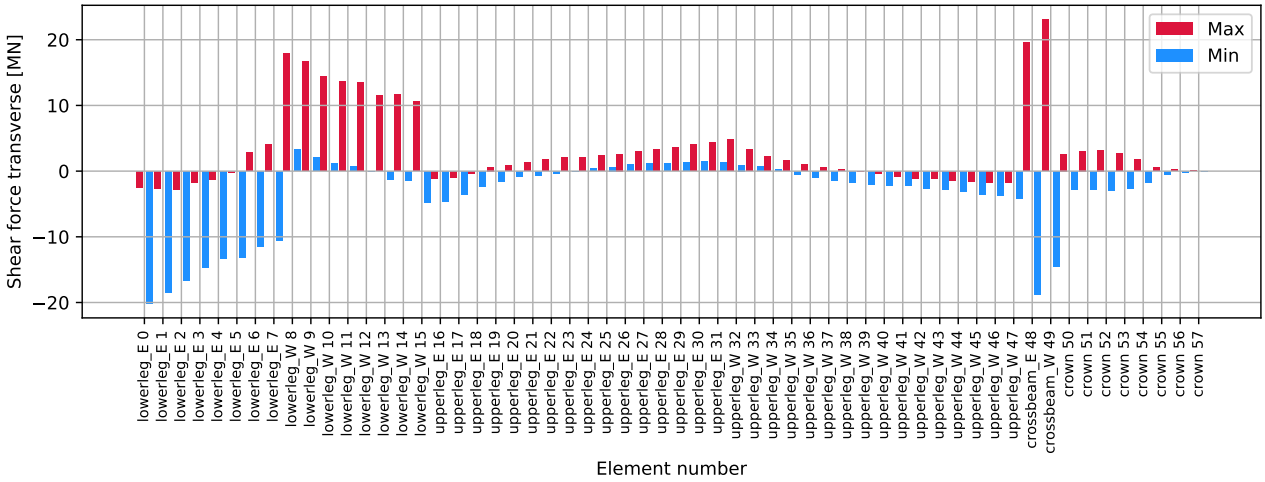

Figure 4.211: DH A20-A21 0deg - tower: Shear force transverse [MN]

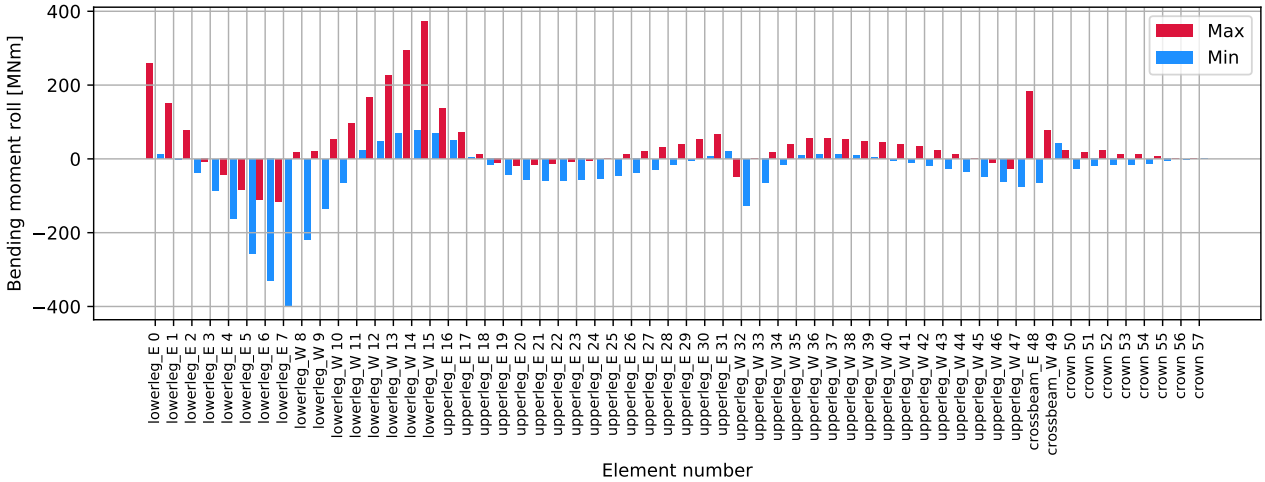

Figure 4.212: DH A20-A21 0deg - tower: Bending moment roll [MNm]

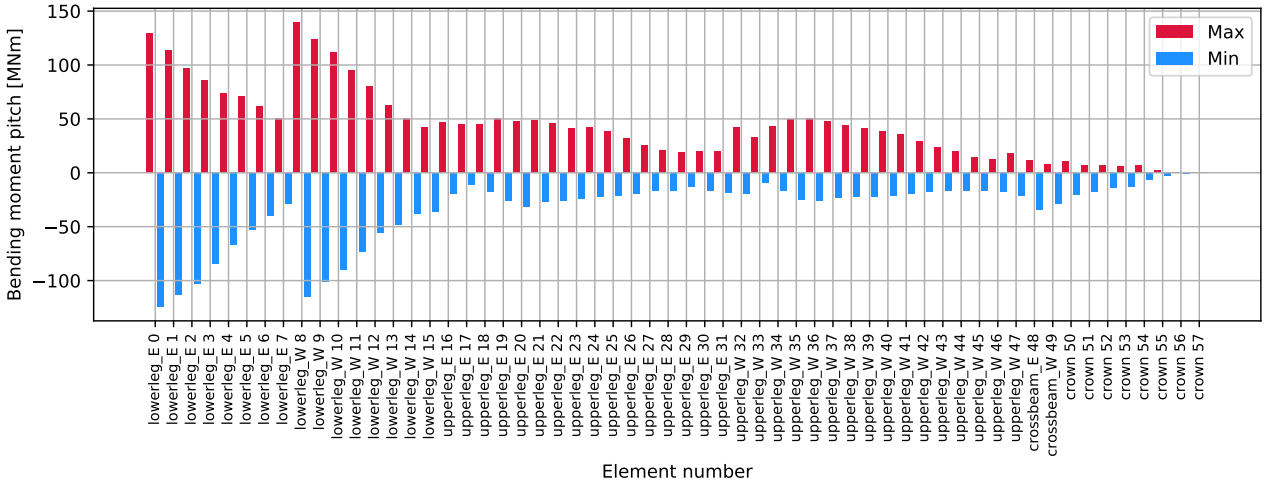

Figure 4.213: DH A20-A21 0deg - tower: Bending moment pitch [MNm]

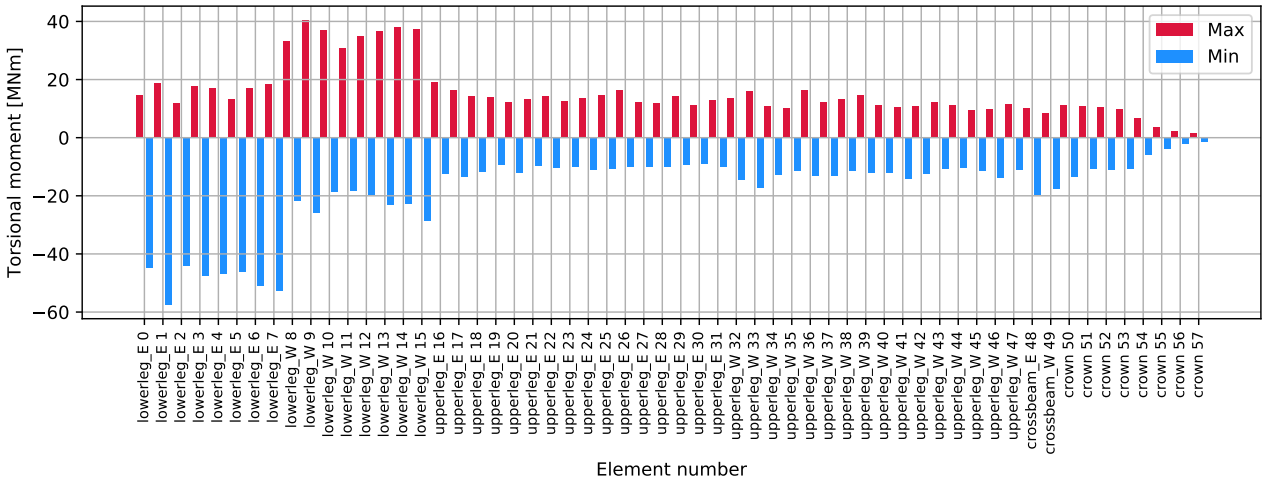

Figure 4.214: DH A20-A21 0deg - tower: Torsional moment [MNm]

4.5.3 Time series

Note : Time series are filtered using a Saviotzky-Golay filter for increased readability of the time history plots. Hence, maximum values that occur due to a rapid vibration are not shown in the plots. For maximum values, refer to the tabulated data.
All elements are numbered from South to North, bottom to top

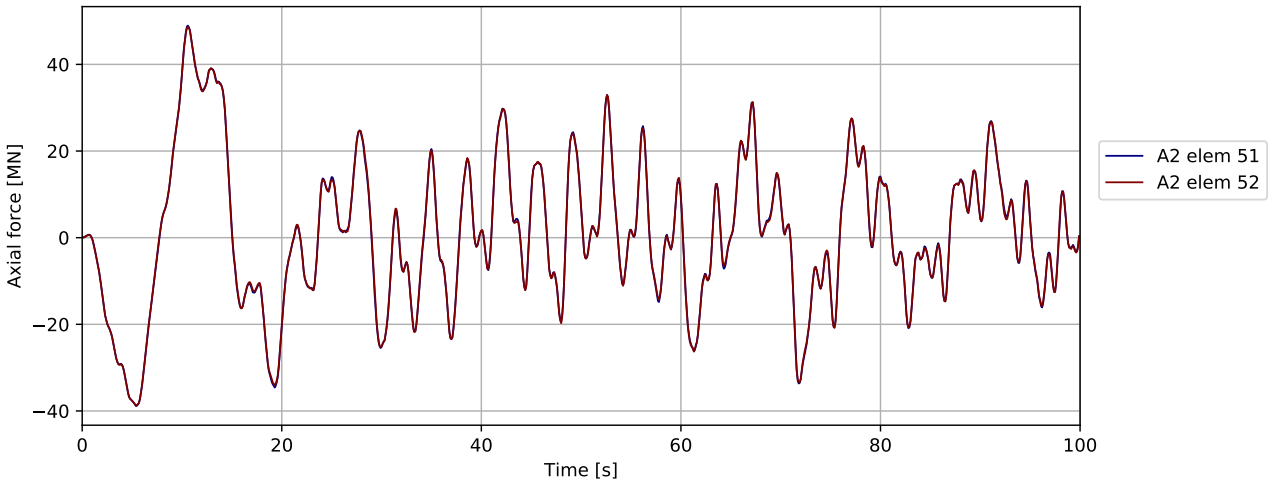

Figure 4.215: DH A20-A21 0deg - bridgegirder @ pylon: Axial force [MN]

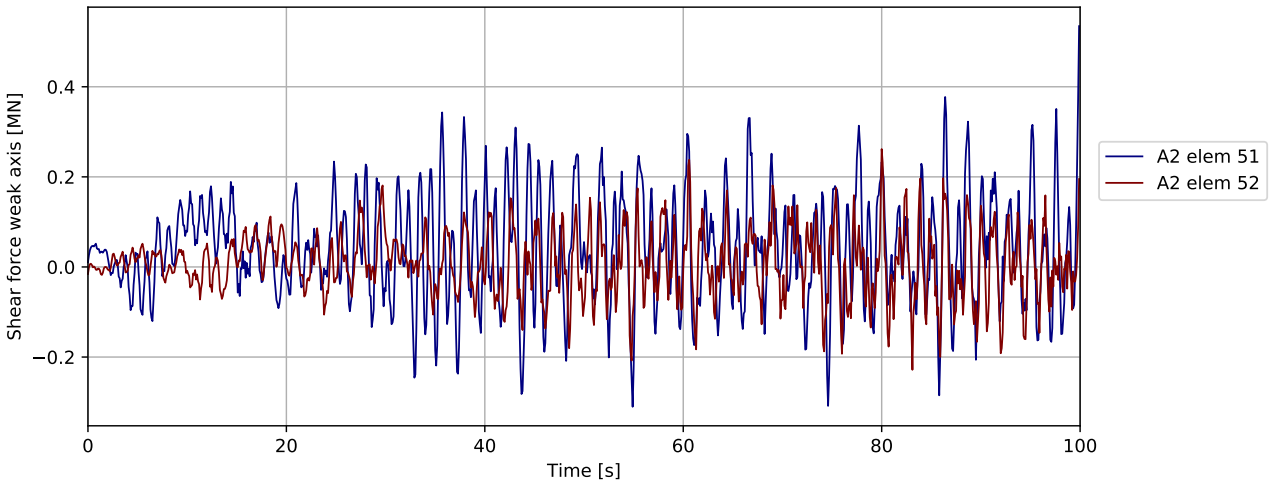

Figure 4.216: DH A20-A21 0deg - bridgegirder @ pylon: Shear force weak axis [MN]

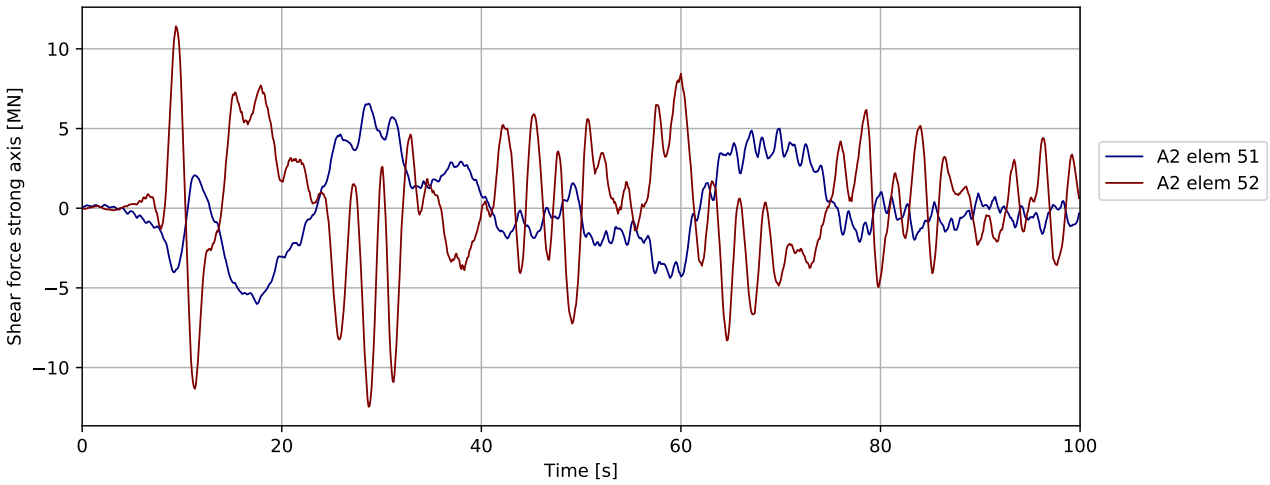

Figure 4.217: DH A20-A21 0deg - bridgegirder @ pylon: Shear force strong axis [MN]

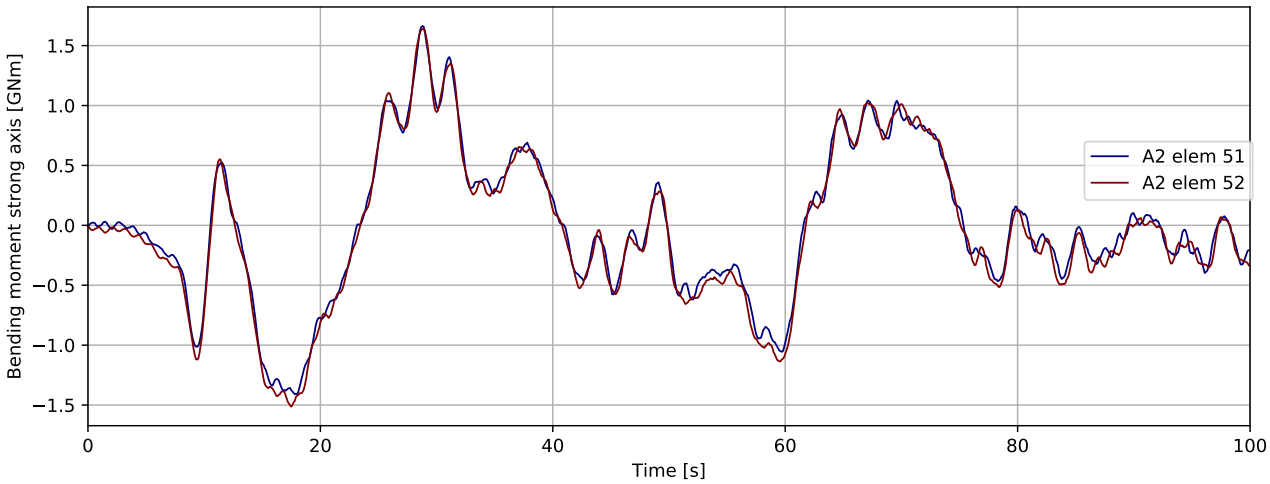

Figure 4.218: DH A20-A21 0deg - bridgegirder @ pylon: Bending moment strong axis [GNm]

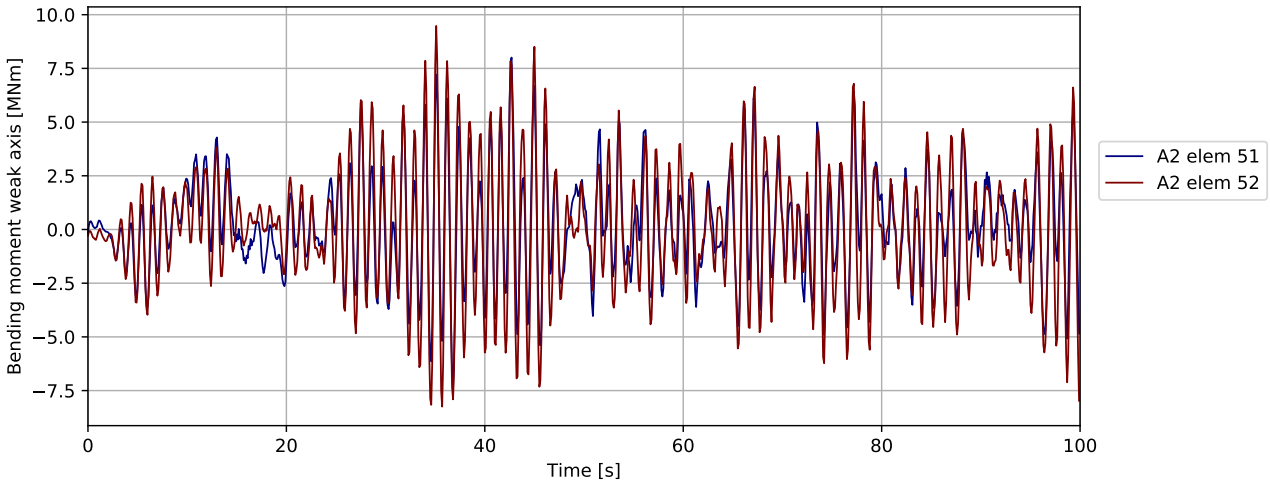

Figure 4.219: DH A20-A21 0deg - bridgegirder @ pylon: Bending moment weak axis [MNm]

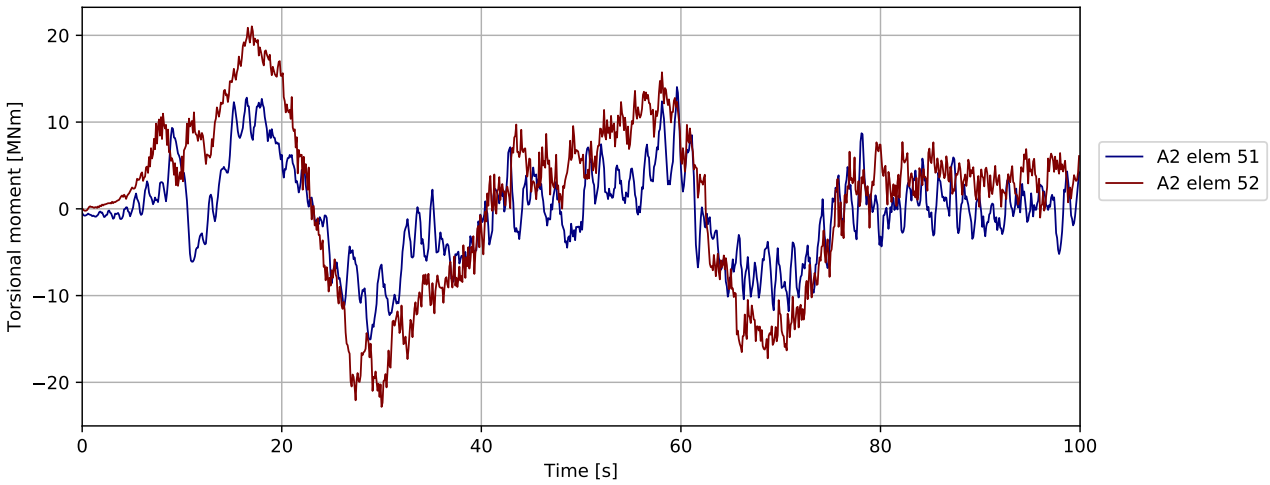

Figure 4.220: DH A20-A21 0deg - bridgegirder @ pylon: Torsional moment [MNm]

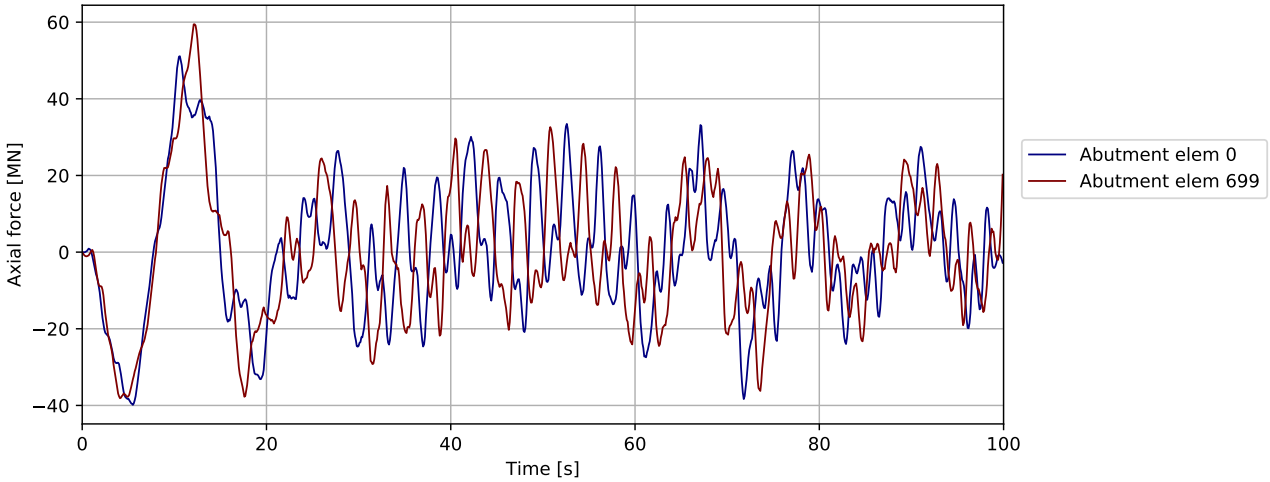

Figure 4.221: DH A20-A21 0deg - bridgegirder @abutments: Axial force [MN]

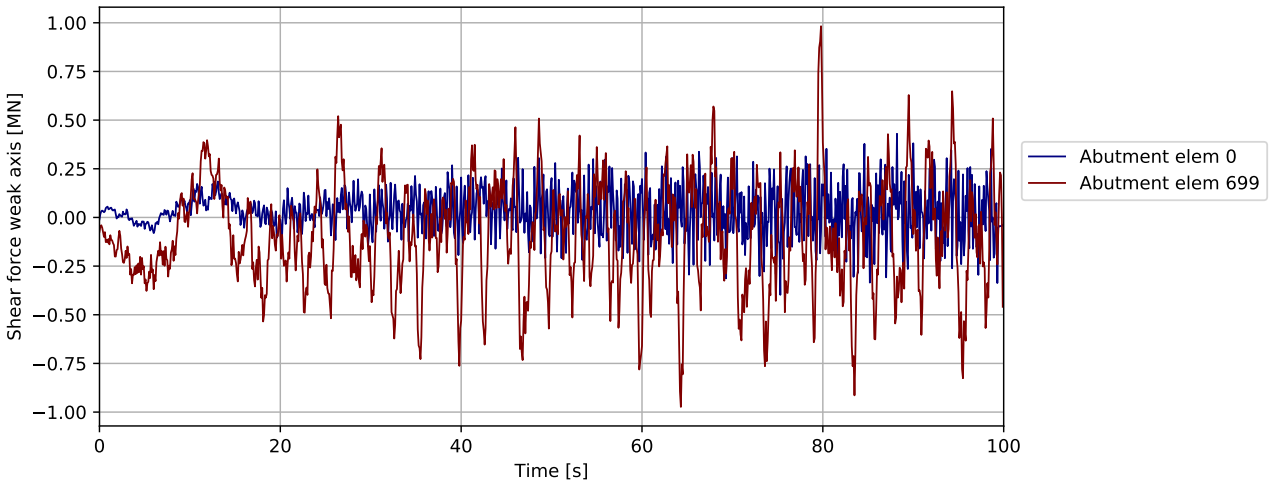

Figure 4.222: DH A20-A21 0deg - bridgegirder @abutments: Shear force weak axis [MN]

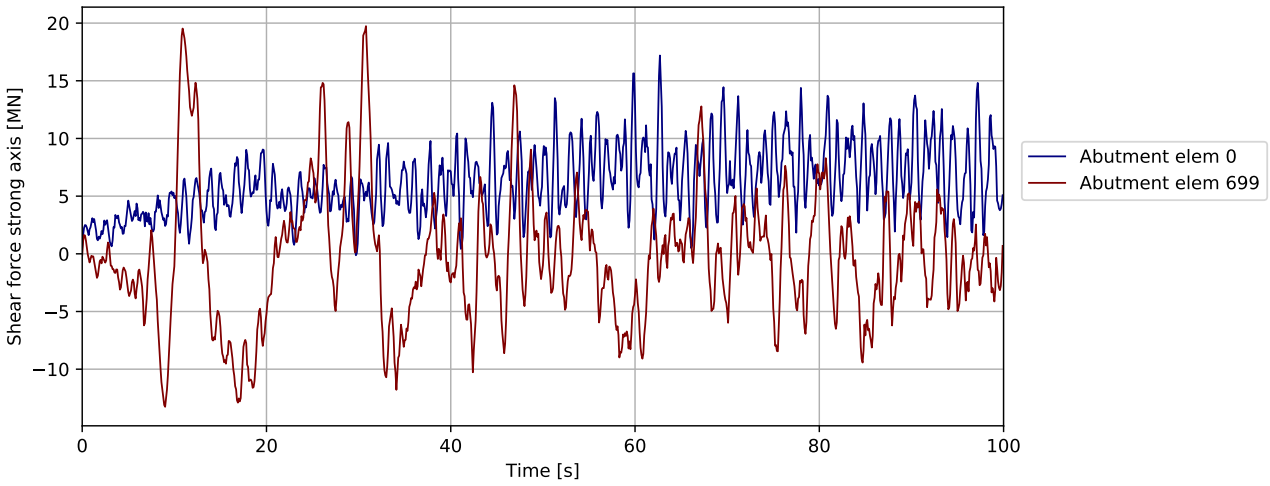

Figure 4.223: DH A20-A21 0deg - bridgegirder @abutments: Shear force strong axis [MN]

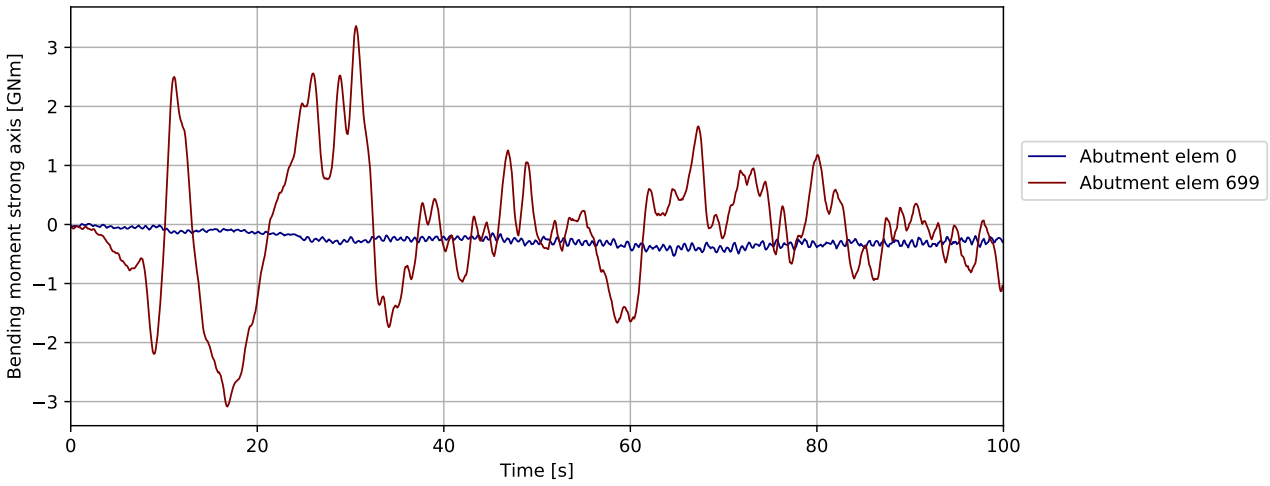

Figure 4.224: DH A20-A21 0deg - bridgegirder @abutments: Bending moment strong axis [GNm]

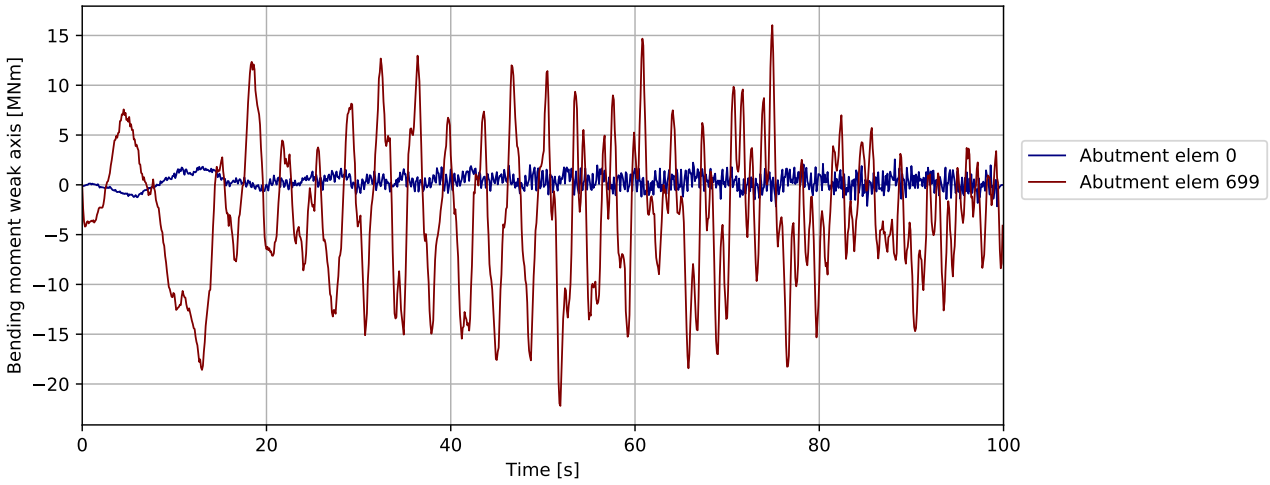

Figure 4.225: DH A20-A21 0deg - bridgegirder @abutments: Bending moment weak axis [MNm]

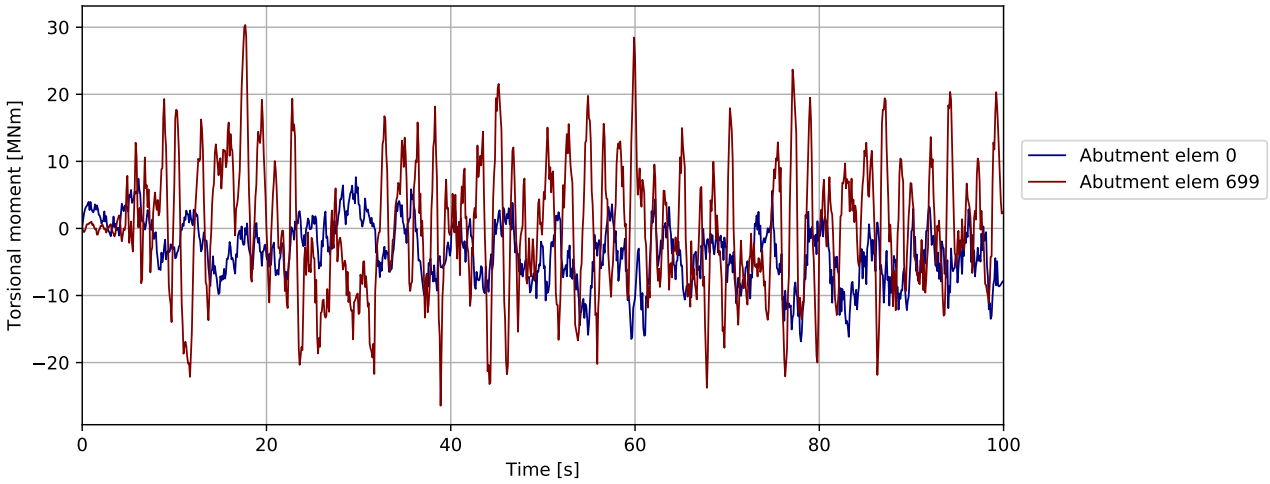

Figure 4.226: DH A20-A21 0deg - bridgegirder @abutments: Torsional moment [MNm]

Note : Compressive spring force is negative

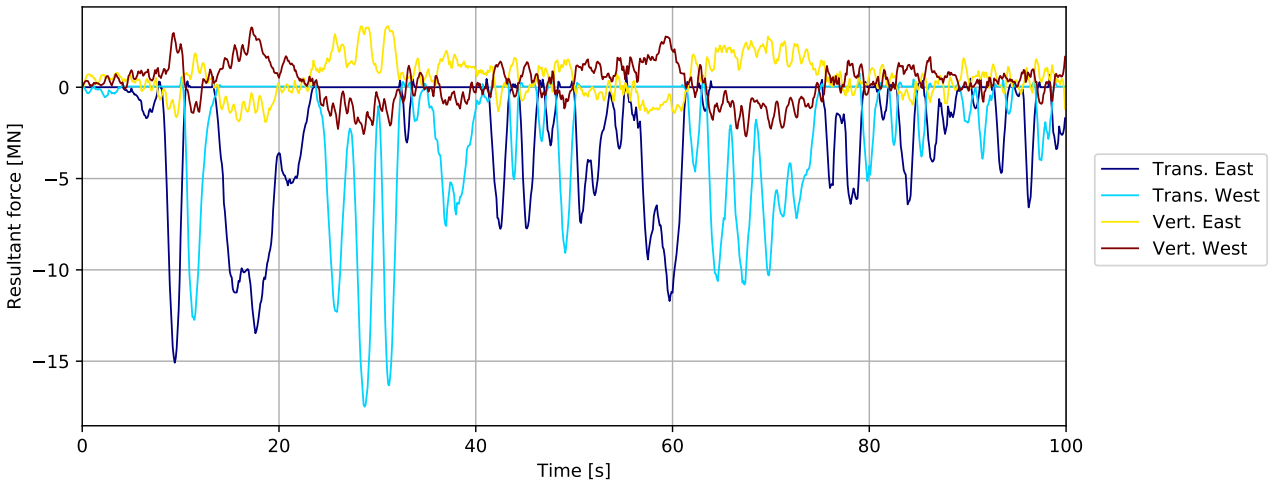

Figure 4.227: DH A20-A21 0deg - bridgegirder supports in tower: Resultant force [MN]

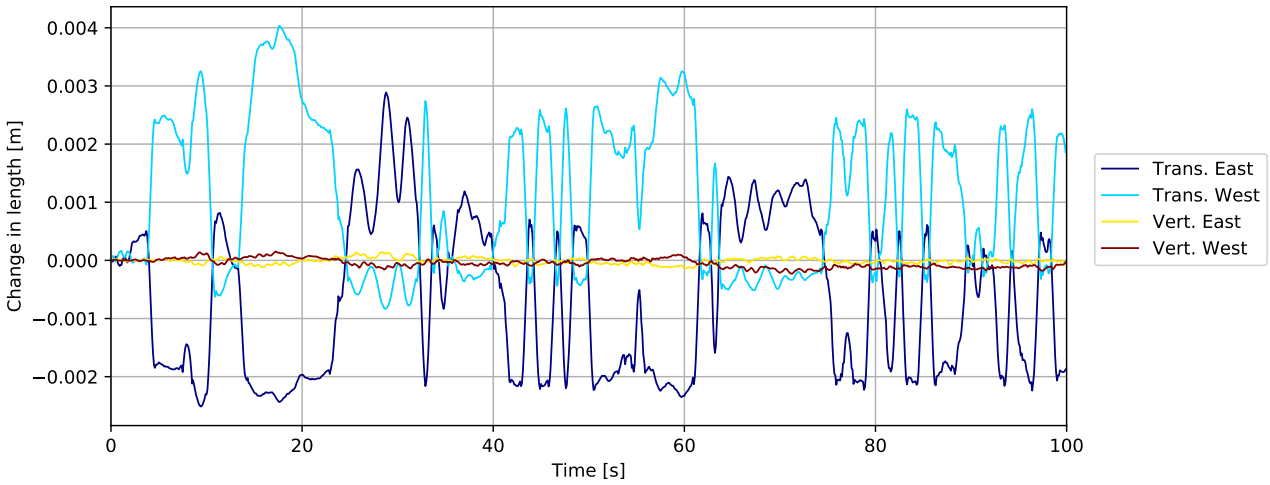

Figure 4.228: DH A20-A21 0deg - bridgegirder supports in tower: Change in length [m]

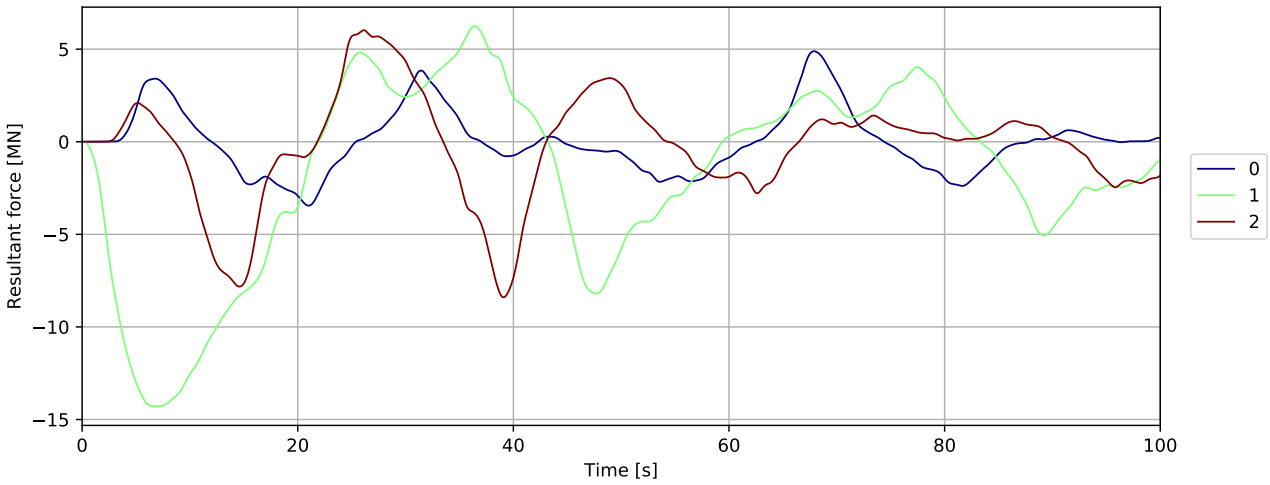

Figure 4.229: Mooring force

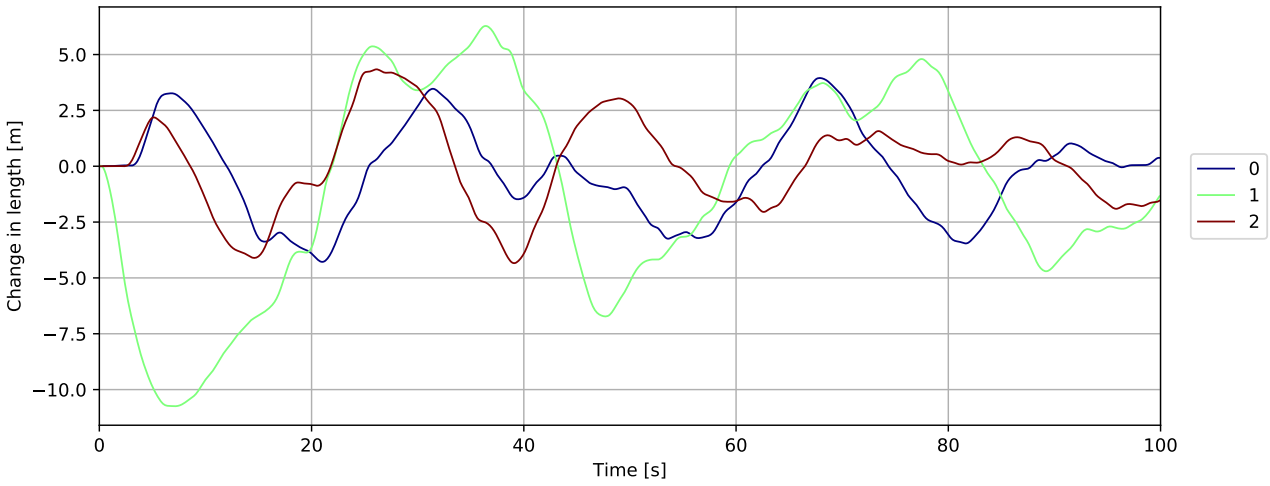

Figure 4.230: Mooring displacement

4.6 Deck house A23-A24 0deg

4.6.1 Overall response

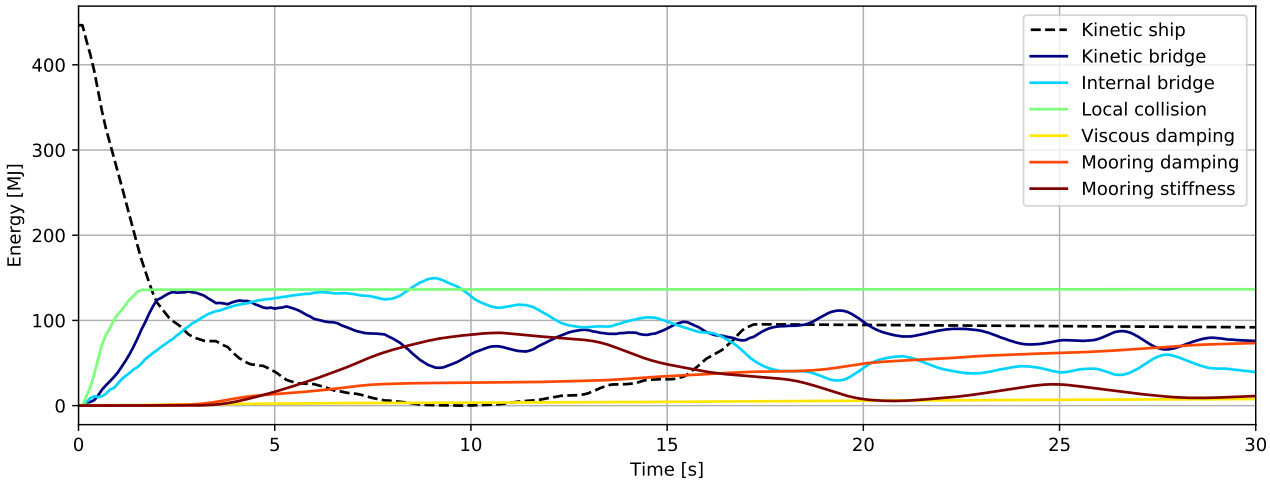

Figure 4.231: Energy [MJ] - initial phase

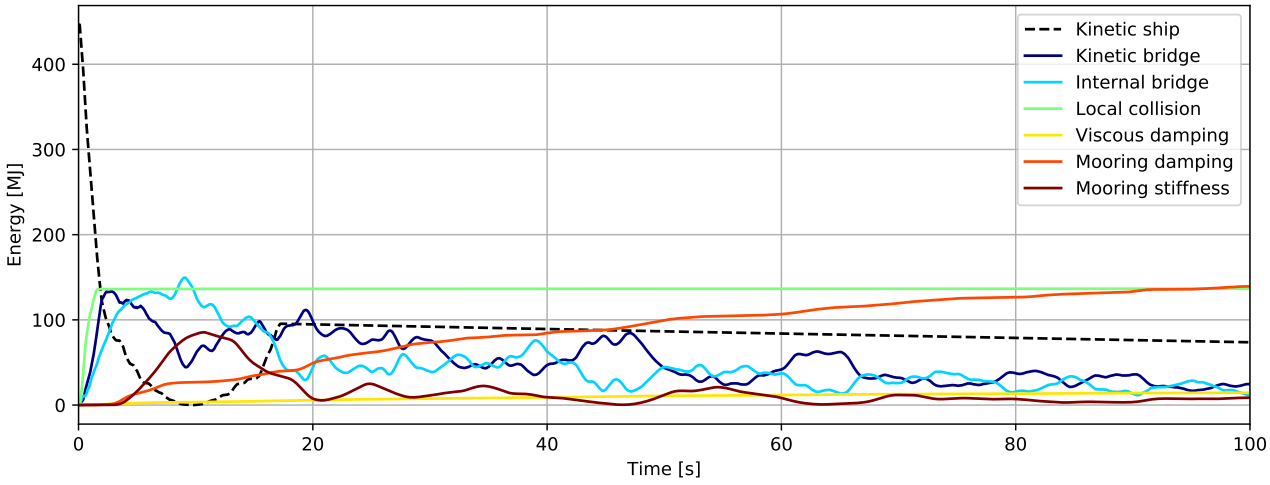

Figure 4.232: Energy [MJ]

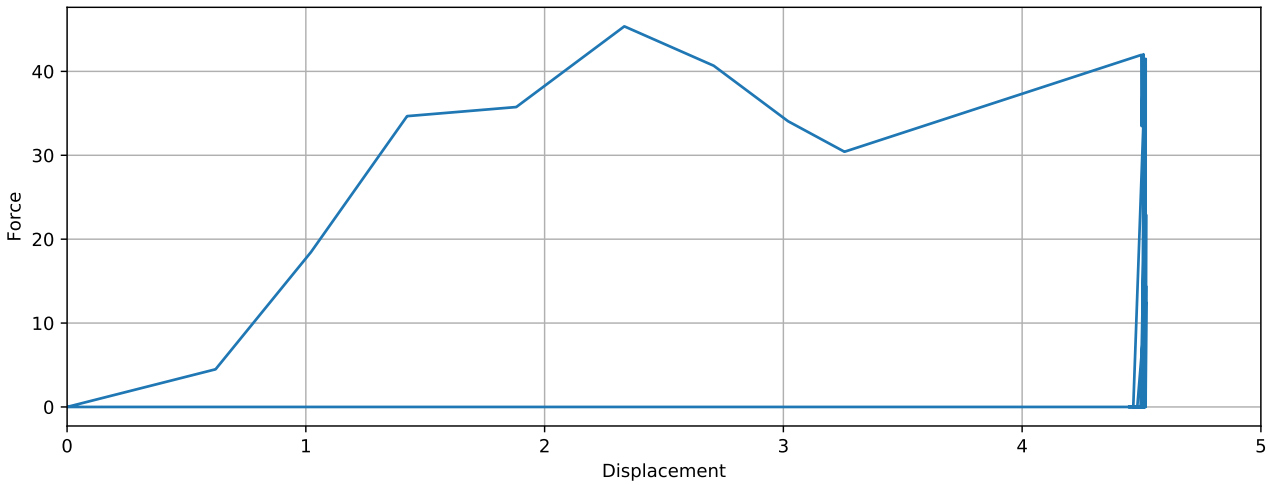

Figure 4.233: Simulated local collision force-displacement

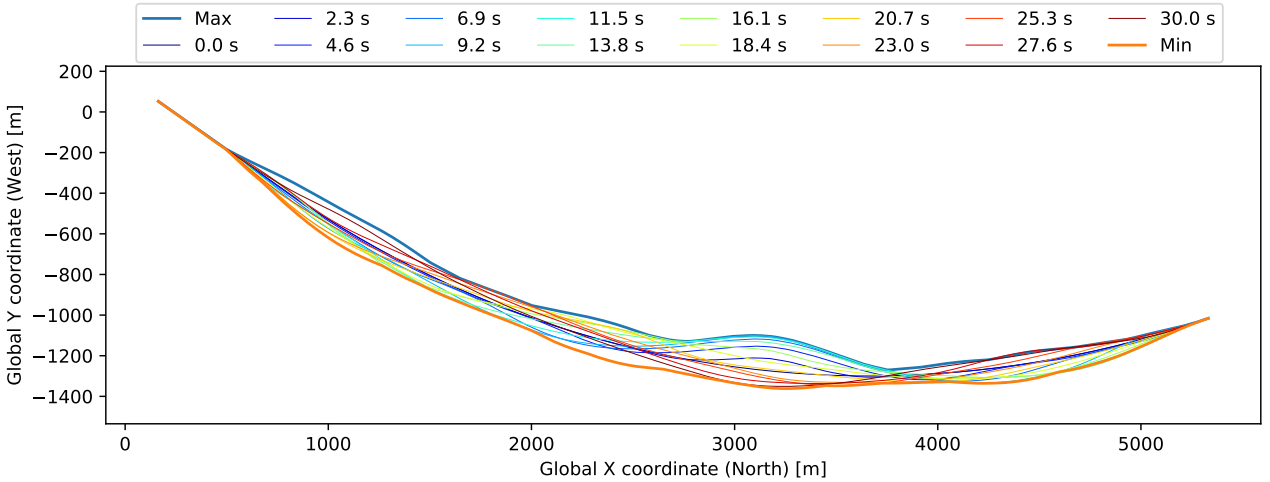

Figure 4.234: Bridgegirder deflection (10x displacment scaling)

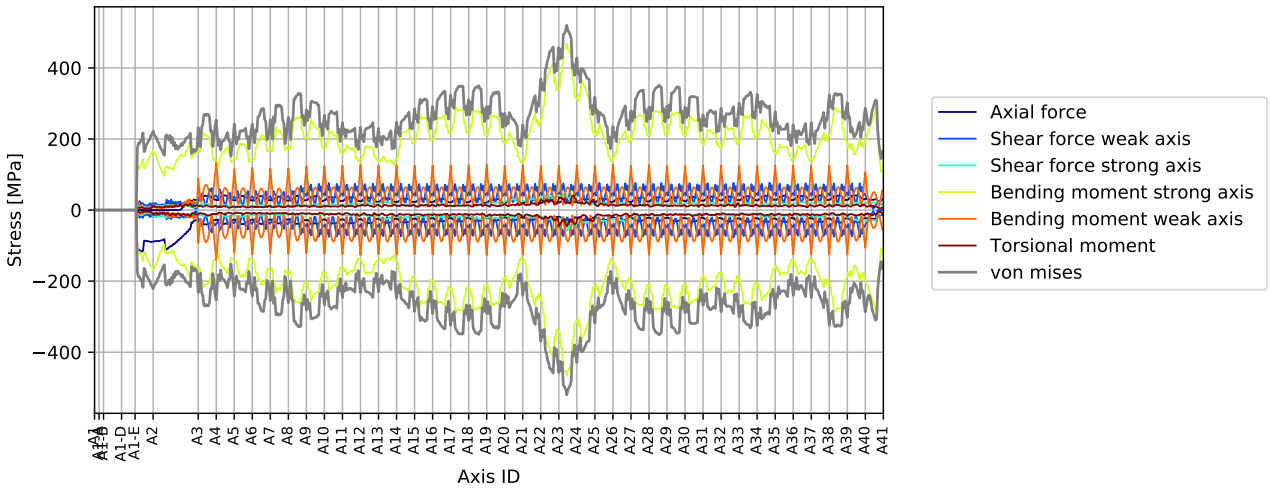

Figure 4.235: Stress envelope from all force components

4.6.2 Envelope plots

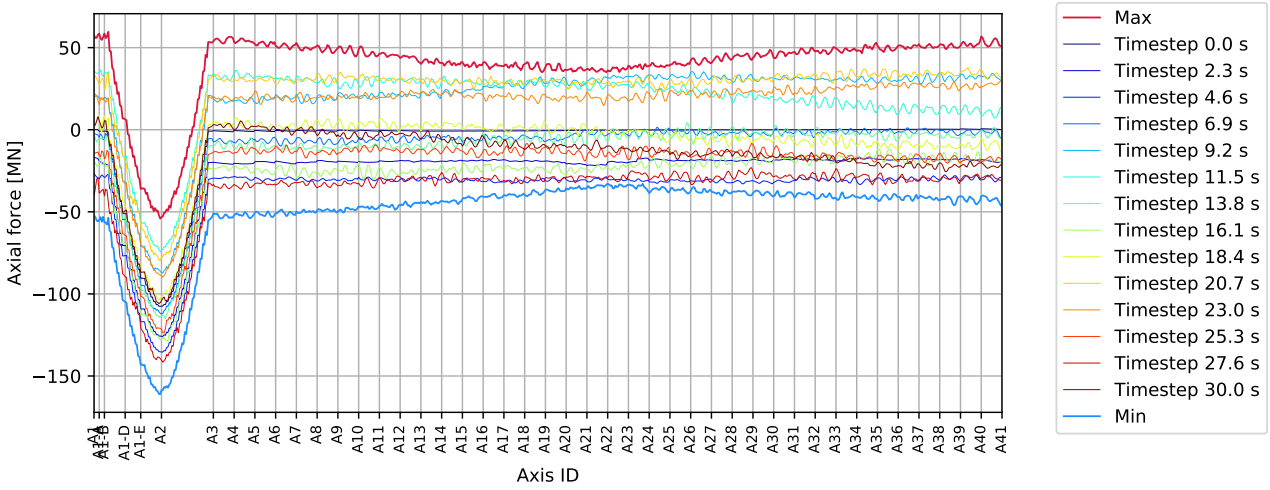

Figure 4.236: DH A23-A24 0deg - bridgegirder : Axial force [MN]

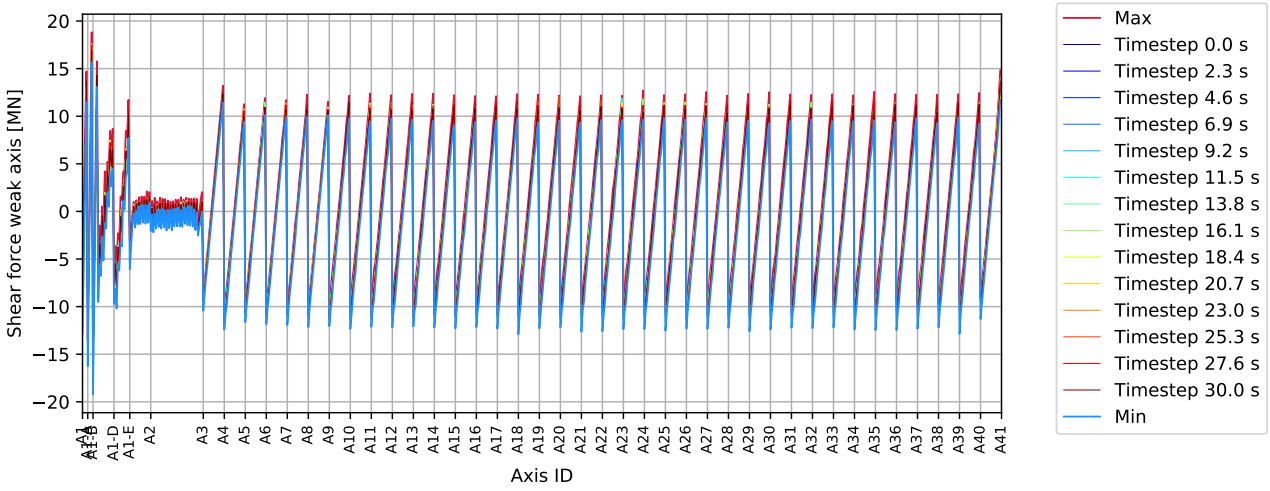

Figure 4.237: DH A23-A24 0deg - bridgegirder : Shear force weak axis [MN]