

# X62-S2.0

## External forces and moments

Crankshaft type : FCV2 (v3\_1)

Rating R1 : 2685 kW/Cyl. @ 108 rpm / Standard Tuning

| Engine Type                                  |        |  | 5X62-S2.0   | 6X62-S2.0   | 7X62-S2.0   | 8X62-S2.0   |
|----------------------------------------------|--------|--|-------------|-------------|-------------|-------------|
| Speed                                        |        |  | 108 rpm     | 108 rpm     | 108 rpm     | 108 rpm     |
| Power                                        |        |  | 13425 kW    | 16110 kW    | 18795 kW    | 21480 kW    |
| Crank type                                   |        |  | FCV2 (v3_1) | FCV2 (v3_1) | FCV2 (v3_1) | FCV2 (v3_1) |
| <b>Massmoments / Forces</b>                  |        |  |             |             |             |             |
| <b>Free Forces</b>                           |        |  |             |             |             |             |
| F1v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F1h                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F2v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F4v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| <b>External Moments</b>                      |        |  |             |             |             |             |
| M1v                                          | [±kNm] |  | 181         | 0           | 108         | 362         |
| M1h                                          | [±kNm] |  | 181         | 0           | 108         | 362         |
| M2v                                          | [±kNm] |  | 2152        | 1497        | 435         | 0           |
| M2v *)                                       | [±kNm] |  | 1083        | 752         | -           | -           |
| M4v                                          | [±kNm] |  | 13          | 104         | 295         | 120         |
| <b>Lateral H-Moments <math>M_{LH}</math></b> |        |  |             |             |             |             |
| Ord.1                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.2                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.3                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.4                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.5                                        | [±kNm] |  | 1525        | 0           | 0           | 0           |
| Ord.6                                        | [±kNm] |  | 0           | 1201        | 0           | 0           |
| Ord.7                                        | [±kNm] |  | 0           | 0           | 965         | 0           |
| Ord.8                                        | [±kNm] |  | 0           | 0           | 0           | 706         |
| Ord.9                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.10                                       | [±kNm] |  | 197         | 0           | 0           | 0           |
| Ord.11                                       | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.12                                       | [±kNm] |  | 0           | 86          | 0           | 0           |
| <b>Lateral X-Moments <math>M_{LX}</math></b> |        |  |             |             |             |             |
| Ord.1                                        | [±kNm] |  | 160         | 0           | 95          | 320         |
| Ord.2                                        | [±kNm] |  | 90          | 63          | 18          | 0           |
| Ord.3                                        | [±kNm] |  | 190         | 342         | 375         | 480         |
| Ord.4                                        | [±kNm] |  | 57          | 441         | 1254        | 509         |
| Ord.5                                        | [±kNm] |  | 0           | 0           | 96          | 1200        |
| Ord.6                                        | [±kNm] |  | 25          | 0           | 15          | 0           |
| Ord.7                                        | [±kNm] |  | 206         | 0           | 0           | 37          |
| Ord.8                                        | [±kNm] |  | 122         | 85          | 7           | 0           |
| Ord.9                                        | [±kNm] |  | 7           | 147         | 16          | 15          |
| Ord.10                                       | [±kNm] |  | 0           | 42          | 119         | 0           |
| Ord.11                                       | [±kNm] |  | 2           | 0           | 52          | 67          |
| Ord.12                                       | [±kNm] |  | 22          | 0           | 4           | 18          |
| <b>Torque variation</b>                      |        |  |             |             |             |             |
|                                              | [±kNm] |  | 1566.8      | 1218.4      | 972         | 708.7       |

\*) with iELBA applied at FE + DE

The values for other engine ratings are available on request

The resulting lateral guide force at the crosshead can be estimated as follows:  $FL = MLH \times 0.296$  [kN]

# X62-S2.0

## External forces and moments

Crankshaft type : FCV2 (v3\_1)

Rating R1 : 2685 kW/Cyl. @ 108 rpm / Delta Tuning

| Engine Type                                  |        |  | 5X62-S2.0   | 6X62-S2.0   | 7X62-S2.0   | 8X62-S2.0   |
|----------------------------------------------|--------|--|-------------|-------------|-------------|-------------|
| Speed                                        |        |  | 108 rpm     | 108 rpm     | 108 rpm     | 108 rpm     |
| Power                                        |        |  | 13425 kW    | 16110 kW    | 18795 kW    | 21480 kW    |
| Crank type                                   |        |  | FCV2 (v3_1) | FCV2 (v3_1) | FCV2 (v3_1) | FCV2 (v3_1) |
| <b>Massmoments / Forces</b>                  |        |  |             |             |             |             |
| <b>Free Forces</b>                           |        |  |             |             |             |             |
| F1v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F1h                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F2v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F4v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| <b>External Moments</b>                      |        |  |             |             |             |             |
| M1v                                          | [±kNm] |  | 181         | 0           | 108         | 362         |
| M1h                                          | [±kNm] |  | 181         | 0           | 108         | 362         |
| M2v                                          | [±kNm] |  | 2152        | 1497        | 435         | 0           |
| M2v *)                                       | [±kNm] |  | 1083        | 752         | -           | -           |
| M4v                                          | [±kNm] |  | 13          | 104         | 295         | 120         |
| <b>Lateral H-Moments <math>M_{LH}</math></b> |        |  |             |             |             |             |
| Ord.1                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.2                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.3                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.4                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.5                                        | [±kNm] |  | 1486        | 0           | 0           | 0           |
| Ord.6                                        | [±kNm] |  | 0           | 1169        | 0           | 0           |
| Ord.7                                        | [±kNm] |  | 0           | 0           | 944         | 0           |
| Ord.8                                        | [±kNm] |  | 0           | 0           | 0           | 692         |
| Ord.9                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.10                                       | [±kNm] |  | 195         | 0           | 0           | 0           |
| Ord.11                                       | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.12                                       | [±kNm] |  | 0           | 90          | 0           | 0           |
| <b>Lateral X-Moments <math>M_{LX}</math></b> |        |  |             |             |             |             |
| Ord.1                                        | [±kNm] |  | 158         | 0           | 94          | 316         |
| Ord.2                                        | [±kNm] |  | 88          | 61          | 18          | 0           |
| Ord.3                                        | [±kNm] |  | 178         | 322         | 352         | 451         |
| Ord.4                                        | [±kNm] |  | 56          | 431         | 1225        | 498         |
| Ord.5                                        | [±kNm] |  | 0           | 0           | 93          | 1169        |
| Ord.6                                        | [±kNm] |  | 24          | 0           | 14          | 0           |
| Ord.7                                        | [±kNm] |  | 201         | 0           | 0           | 36          |
| Ord.8                                        | [±kNm] |  | 119         | 83          | 6           | 0           |
| Ord.9                                        | [±kNm] |  | 7           | 144         | 16          | 14          |
| Ord.10                                       | [±kNm] |  | 0           | 42          | 118         | 0           |
| Ord.11                                       | [±kNm] |  | 2           | 0           | 53          | 68          |
| Ord.12                                       | [±kNm] |  | 23          | 0           | 5           | 18          |
| <b>Torque variation</b>                      |        |  |             |             |             |             |
|                                              | [±kNm] |  | 1524.2      | 1183.9      | 948.4       | 692.1       |

\*) with iELBA applied at FE + DE

The values for other engine ratings are available on request

The resulting lateral guide force at the crosshead can be estimated as follows:  $FL = MLH \times 0.296$  [kN]

# X62-S2.0

## External forces and moments

Crankshaft type : FCV2 (v3\_1)

Rating R1 : 2685 kW/Cyl. @ 108 rpm / Low Load Tuning

| Engine Type                                  |        |  | 5X62-S2.0   | 6X62-S2.0   | 7X62-S2.0   | 8X62-S2.0   |
|----------------------------------------------|--------|--|-------------|-------------|-------------|-------------|
| Speed                                        |        |  | 108 rpm     | 108 rpm     | 108 rpm     | 108 rpm     |
| Power                                        |        |  | 13425 kW    | 16110 kW    | 18795 kW    | 21480 kW    |
| Crank type                                   |        |  | FCV2 (v3_1) | FCV2 (v3_1) | FCV2 (v3_1) | FCV2 (v3_1) |
| <b>Massmoments / Forces</b>                  |        |  |             |             |             |             |
| <b>Free Forces</b>                           |        |  |             |             |             |             |
| F1v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F1h                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F2v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F4v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| <b>External Moments</b>                      |        |  |             |             |             |             |
| M1v                                          | [±kNm] |  | 181         | 0           | 108         | 362         |
| M1h                                          | [±kNm] |  | 181         | 0           | 108         | 362         |
| M2v                                          | [±kNm] |  | 2152        | 1497        | 435         | 0           |
| M2v *)                                       | [±kNm] |  | 1083        | 752         | -           | -           |
| M4v                                          | [±kNm] |  | 13          | 104         | 295         | 120         |
| <b>Lateral H-Moments <math>M_{LH}</math></b> |        |  |             |             |             |             |
| Ord.1                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.2                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.3                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.4                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.5                                        | [±kNm] |  | 1486        | 0           | 0           | 0           |
| Ord.6                                        | [±kNm] |  | 0           | 1169        | 0           | 0           |
| Ord.7                                        | [±kNm] |  | 0           | 0           | 943         | 0           |
| Ord.8                                        | [±kNm] |  | 0           | 0           | 0           | 692         |
| Ord.9                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.10                                       | [±kNm] |  | 195         | 0           | 0           | 0           |
| Ord.11                                       | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.12                                       | [±kNm] |  | 0           | 90          | 0           | 0           |
| <b>Lateral X-Moments <math>M_{LX}</math></b> |        |  |             |             |             |             |
| Ord.1                                        | [±kNm] |  | 159         | 0           | 94          | 317         |
| Ord.2                                        | [±kNm] |  | 88          | 61          | 18          | 0           |
| Ord.3                                        | [±kNm] |  | 179         | 323         | 353         | 452         |
| Ord.4                                        | [±kNm] |  | 56          | 431         | 1225        | 498         |
| Ord.5                                        | [±kNm] |  | 0           | 0           | 93          | 1170        |
| Ord.6                                        | [±kNm] |  | 24          | 0           | 14          | 0           |
| Ord.7                                        | [±kNm] |  | 201         | 0           | 0           | 36          |
| Ord.8                                        | [±kNm] |  | 120         | 83          | 6           | 0           |
| Ord.9                                        | [±kNm] |  | 7           | 144         | 16          | 14          |
| Ord.10                                       | [±kNm] |  | 0           | 42          | 118         | 0           |
| Ord.11                                       | [±kNm] |  | 2           | 0           | 53          | 68          |
| Ord.12                                       | [±kNm] |  | 23          | 0           | 5           | 18          |
| <b>Torque variation</b>                      |        |  |             |             |             |             |
|                                              | [±kNm] |  | 1524.4      | 1183.3      | 947.9       | 692.8       |

\*) with iELBA applied at FE + DE

The values for other engine ratings are available on request

The resulting lateral guide force at the crosshead can be estimated as follows:  $FL = MLH \times 0.296$  [kN]

# X62-S2.0

## External forces and moments

Crankshaft type : FCV2 (v3\_1)

Rating R1 : 2685 kW/Cyl. @ 108 rpm / Delta-Bypass Tuning

| Engine Type                                  |        |  | 5X62-S2.0   | 6X62-S2.0   | 7X62-S2.0   | 8X62-S2.0   |
|----------------------------------------------|--------|--|-------------|-------------|-------------|-------------|
| Speed                                        |        |  | 108 rpm     | 108 rpm     | 108 rpm     | 108 rpm     |
| Power                                        |        |  | 13425 kW    | 16110 kW    | 18795 kW    | 21480 kW    |
| Crank type                                   |        |  | FCV2 (v3_1) | FCV2 (v3_1) | FCV2 (v3_1) | FCV2 (v3_1) |
| <b>Massmoments / Forces</b>                  |        |  |             |             |             |             |
| <b>Free Forces</b>                           |        |  |             |             |             |             |
| F1v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F1h                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F2v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| F4v                                          | [±kN]  |  | 0           | 0           | 0           | 0           |
| <b>External Moments</b>                      |        |  |             |             |             |             |
| M1v                                          | [±kNm] |  | 181         | 0           | 108         | 362         |
| M1h                                          | [±kNm] |  | 181         | 0           | 108         | 362         |
| M2v                                          | [±kNm] |  | 2152        | 1497        | 435         | 0           |
| M2v *)                                       | [±kNm] |  | 1083        | 752         | -           | -           |
| M4v                                          | [±kNm] |  | 13          | 104         | 295         | 120         |
| <b>Lateral H-Moments <math>M_{LH}</math></b> |        |  |             |             |             |             |
| Ord.1                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.2                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.3                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.4                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.5                                        | [±kNm] |  | 1501        | 0           | 0           | 0           |
| Ord.6                                        | [±kNm] |  | 0           | 1183        | 0           | 0           |
| Ord.7                                        | [±kNm] |  | 0           | 0           | 955         | 0           |
| Ord.8                                        | [±kNm] |  | 0           | 0           | 0           | 702         |
| Ord.9                                        | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.10                                       | [±kNm] |  | 199         | 0           | 0           | 0           |
| Ord.11                                       | [±kNm] |  | 0           | 0           | 0           | 0           |
| Ord.12                                       | [±kNm] |  | 0           | 92          | 0           | 0           |
| <b>Lateral X-Moments <math>M_{LX}</math></b> |        |  |             |             |             |             |
| Ord.1                                        | [±kNm] |  | 159         | 0           | 95          | 318         |
| Ord.2                                        | [±kNm] |  | 87          | 61          | 18          | 0           |
| Ord.3                                        | [±kNm] |  | 182         | 328         | 359         | 460         |
| Ord.4                                        | [±kNm] |  | 56          | 435         | 1235        | 502         |
| Ord.5                                        | [±kNm] |  | 0           | 0           | 94          | 1181        |
| Ord.6                                        | [±kNm] |  | 24          | 0           | 14          | 0           |
| Ord.7                                        | [±kNm] |  | 204         | 0           | 0           | 37          |
| Ord.8                                        | [±kNm] |  | 121         | 84          | 7           | 0           |
| Ord.9                                        | [±kNm] |  | 7           | 147         | 16          | 15          |
| Ord.10                                       | [±kNm] |  | 0           | 42          | 120         | 0           |
| Ord.11                                       | [±kNm] |  | 3           | 0           | 55          | 70          |
| Ord.12                                       | [±kNm] |  | 23          | 0           | 5           | 19          |
| <b>Torque variation</b>                      |        |  |             |             |             |             |
|                                              | [±kNm] |  | 1539.7      | 1197.7      | 959.8       | 702.6       |

\*) with iELBA applied at FE + DE

The values for other engine ratings are available on request

The resulting lateral guide force at the crosshead can be estimated as follows:  $FL = MLH \times 0.296$  [kN]

5-8 X62-S2.0 / Free external mass moments  
Power Related Unbalance (PRU)  
Rating R1 2685 kW/Cyl @ 108 rpm

Crankshaft type: FCV2 (v3\_1)

