

X92DF-M

External forces and moments

Rating R1 : 6450 kW/Cyl. / 80 rpm LowLoad Tuning Max. Methanol and Diesel Mode

| Engine Type | | 8X92DF-M | 9X92DF-M | 10X92DF-M | 11X92DF-M | 12X92DF-M |
|--|--------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Speed | | 80 rpm | 80 rpm | 80 rpm | 80 rpm | 80 rpm |
| Power | | 51600 kW | 58050 kW | 64500 kW | 70950 kW | 77400 kW |
| Firing order | | regular | irregular | irregular | irregular | irregular |
| Crank type | | FCV1-L / FCV3-S | FCV1-L / FCV3-S | FCV1-L / FCV3-S | FCV4-L / FCV2-S | FCV4-L / FCV2-S |
| Crankshaft type | | 2-part | 2-part | 2-part | 2-part | 2-part |
| Massmoments / Forces | | | | | | |
| Free Forces | | | | | | |
| F1v | [±kN] | 25 | 43 | 85 | 43 | 56 |
| F1h | [±kN] | 53 | 45 | 74 | 42 | 62 |
| F2v | [±kN] | 0 | 72 | 29 | 10 | 38 |
| F4v | [±kN] | 0 | 48 | 14 | 24 | 26 |
| External Moments | | | | | | |
| M1v | [±kNm] | 975 | 869 | 154 | 236 | 1195 |
| M1h | [±kNm] | 381 | 815 | 185 | 216 | 1576 |
| M2v *) | [±kNm] | 327 | 2439 | 1607 | 2382 | 775 |
| M4v | [±kNm] | 569 | 732 | 768 | 317 | 1293 |
| Lateral H-Moments M_{LH} | | | | | | |
| Ord.1 | [±kNm] | 6 | 81 | 176 | 108 | 134 |
| Ord.2 | [±kNm] | 0 | 11 | 18 | 33 | 11 |
| Ord.3 | [±kNm] | 22 | 42 | 44 | 155 | 43 |
| Ord.4 | [±kNm] | 0 | 594 | 159 | 296 | 326 |
| Ord.5 | [±kNm] | 3 | 734 | 271 | 1732 | 1634 |
| Ord.6 | [±kNm] | 0 | 163 | 144 | 1317 | 241 |
| Ord.7 | [±kNm] | 0 | 91 | 69 | 215 | 994 |
| Ord.8 | [±kNm] | 2477 | 94 | 18 | 347 | 179 |
| Ord.9 | [±kNm] | 0 | 1851 | 120 | 89 | 71 |
| Ord.10 | [±kNm] | 0 | 28 | 1404 | 78 | 65 |
| Ord.11 | [±kNm] | 0 | 19 | 60 | 774 | 47 |
| Ord.12 | [±kNm] | 0 | 19 | 3 | 20 | 577 |
| Lateral X-Moments M_{LX} | | | | | | |
| Ord.1 | [±kNm] | 211 | 604 | 131 | 150 | 965 |
| Ord.2 | [±kNm] | 65 | 322 | 204 | 310 | 98 |
| Ord.3 | [±kNm] | 1663 | 1969 | 2470 | 3090 | 3435 |
| Ord.4 | [±kNm] | 1863 | 2405 | 2514 | 1038 | 4223 |
| Ord.5 | [±kNm] | 5267 | 2215 | 358 | 1140 | 1522 |
| Ord.6 | [±kNm] | 26 | 3514 | 870 | 526 | 603 |
| Ord.7 | [±kNm] | 23 | 563 | 3322 | 389 | 652 |
| Ord.8 | [±kNm] | 0 | 204 | 248 | 2193 | 1032 |
| Ord.9 | [±kNm] | 10 | 22 | 61 | 620 | 1802 |
| Ord.10 | [±kNm] | 6 | 114 | 17 | 66 | 425 |
| Ord.11 | [±kNm] | 319 | 34 | 21 | 184 | 152 |
| Ord.12 | [±kNm] | 68 | 271 | 17 | 77 | 51 |
| Torque variation | [±kNm] | 2536 | 2805 | 1892 | 3188 | 2840 |

* No engine fitted 2nd order balancer available. If reduction of M2v is needed, an external compensator has to be applied.

The values for other engine ratings are available on request

The resulting lateral guide force at the crosshead can be calculated as follows: $FL=MLH \times 0.192$ [kN]

**8-12 X92DF-M / Free external mass moments
Power related unbalance (PRU)
Rating R1 6450 kW/Cyl. @ 80 rpm**

