

# X92DF

## External forces and moments

Rating R1 : 5320 kW/Cyl. / 80 rpm Max. values Gas/Diesel Mode

Engine Type		6X92DF	7X92DF	8X92DF
Speed		80 rpm	80 rpm	80 rpm
Power		31920 kW	37240 kW	42560 kW
Firing order		regular	regular	irregular
Crankshaft type		1-part	1-part	1-part
<b>Massmoments / Forces</b>				
<b>Free Forces</b>				
F1v	[±kN]	0	0	2
F1h	[±kN]	0	0	1
F2v	[±kN]	0	0	6
F4v	[±kN]	0	0	47
<b>External Moments</b>				
M1v	[±kNm]	0	486	1265
M1h	[±kNm]	0	510	1191
M2v *)	[±kNm]	6906	2005	315
M4v	[±kNm]	479	1362	547
<b>Lateral H-Moments <math>M_{LH}</math></b>				
Ord.1	[±kNm]	0	0	1
Ord.2	[±kNm]	0	0	1
Ord.3	[±kNm]	0	0	60
Ord.4	[±kNm]	0	0	375
Ord.5	[±kNm]	0	0	176
Ord.6	[±kNm]	2601	0	8
Ord.7	[±kNm]	0	2129	14
Ord.8	[±kNm]	0	0	1731
Ord.9	[±kNm]	0	0	8
Ord.10	[±kNm]	0	0	2
Ord.11	[±kNm]	0	0	46
Ord.12	[±kNm]	410	0	110
<b>Lateral X-Moments <math>M_{LX}</math></b>				
Ord.1	[±kNm]	0	347	856
Ord.2	[±kNm]	1388	403	63
Ord.3	[±kNm]	2008	2196	2796
Ord.4	[±kNm]	1102	3130	1258
Ord.5	[±kNm]	0	262	3294
Ord.6	[±kNm]	0	33	55
Ord.7	[±kNm]	0	0	230
Ord.8	[±kNm]	236	18	101
Ord.9	[±kNm]	377	42	53
Ord.10	[±kNm]	112	318	27
Ord.11	[±kNm]	0	280	343
Ord.12	[±kNm]	0	21	74
<b>Torque variation</b>	[±kNm]	2581	2127.3	2077.7

\* 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]

# X92DF

## External forces and moments

Rating R1 : 5320 kW/Cyl. / 80 rpm Max. values Gas/Diesel Mode

Engine Type		9X92DF	10X92DF	11X92DF	12X92DF
Speed		80 rpm	80 rpm	80 rpm	80 rpm
Power		47880 kW	53200 kW	58520 kW	63840 kW
Firing order		irregular	irregular	irregular	irregular
Crankshaft type		2-part	2-part	2-part	2-part
<b>Massmoments / Forces</b>					
<b>Free Forces</b>					
F1v	[±kN]	43	85	43	56
F1h	[±kN]	45	74	42	62
F2v	[±kN]	72	29	10	38
F4v	[±kN]	48	14	24	26
<b>External Moments</b>					
M1v	[±kNm]	869	154	236	1195
M1h	[±kNm]	815	185	216	1576
M2v *)	[±kNm]	2439	1607	2382	775
M4v	[±kNm]	732	768	317	1293
<b>Lateral H-Moments <math>M_{LH}</math></b>					
Ord.1	[±kNm]	74	160	98	122
Ord.2	[±kNm]	32	24	21	9
Ord.3	[±kNm]	47	31	229	129
Ord.4	[±kNm]	373	99	185	205
Ord.5	[±kNm]	505	186	1191	1124
Ord.6	[±kNm]	101	90	820	150
Ord.7	[±kNm]	58	44	137	632
Ord.8	[±kNm]	67	13	245	126
Ord.9	[±kNm]	1292	84	62	50
Ord.10	[±kNm]	22	1087	61	50
Ord.11	[±kNm]	21	66	852	52
Ord.12	[±kNm]	24	4	25	735
<b>Lateral X-Moments <math>M_{LX}</math></b>					
Ord.1	[±kNm]	584	126	145	934
Ord.2	[±kNm]	500	322	484	155
Ord.3	[±kNm]	3954	4958	6202	6897
Ord.4	[±kNm]	1681	1757	725	2952
Ord.5	[±kNm]	1622	262	835	1115
Ord.6	[±kNm]	2230	552	334	383
Ord.7	[±kNm]	346	2042	239	401
Ord.8	[±kNm]	155	188	1667	784
Ord.9	[±kNm]	15	41	418	1215
Ord.10	[±kNm]	84	13	49	314
Ord.11	[±kNm]	45	27	242	200
Ord.12	[±kNm]	332	21	94	62
<b>Torque variation</b>	[±kNm]	1991.6	1506.8	2616.2	2290.1

\* 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]

**6-12 X92DF / Free external mass moments**  
**Power related unbalance (PRU)**  
**Rating R1 5320 kW/Cyl. @ 80 rpm**

