

X40-B

External forces and moments

Crankshaft type : FCV1 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , Standard Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B
Speed		146 rpm	146 rpm	146 rpm	146 rpm
Power		5675 kW	6810 kW	7945 kW	9080 kW
Massmoments / Forces					
Free Forces					
F1v	[±kN]	0	0	0	0
F1h	[±kN]	0	0	0	0
F2v	[±kN]	0	0	0	0
F4v	[±kN]	0	0	0	0
External Moments					
M1v	[±kNm]	55	0	117	111
M1h	[±kNm]	48	0	55	96
M2v *)	[±kNm]	613	426	124	0
M4v	[±kNm]	4	30	84	34
Lateral H-Moments M_{LH}					
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]	463	0	0	0
Ord.6	[±kNm]	0	338	0	0
Ord.7	[±kNm]	0	0	262	0
Ord.8	[±kNm]	0	0	0	190
Ord.9	[±kNm]	0	0	0	0
Ord.10	[±kNm]	36	0	0	0
Ord.11	[±kNm]	0	0	0	0
Ord.12	[±kNm]	0	9	0	0
Lateral X-Moments M_{Lx}					
Ord.1	[±kNm]	45	0	27	91
Ord.2	[±kNm]	24	17	5	0
Ord.3	[±kNm]	56	102	112	143
Ord.4	[±kNm]	15	120	340	138
Ord.5	[±kNm]	0	0	27	335
Ord.6	[±kNm]	6	0	4	0
Ord.7	[±kNm]	48	0	0	9
Ord.8	[±kNm]	31	22	2	0
Ord.9	[±kNm]	1	26	3	3
Ord.10	[±kNm]	0	6	17	0
Ord.11	[±kNm]	0	0	11	14
Ord.12	[±kNm]	2	0	0	2
Torque variation	[±kNm]	476	343	264	191

* 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 can be calculated as follows: $FL=MLH \times 0.376$ [kN]

X40-B

External forces and moments

Crankshaft type : FCV1 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , Delta Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B	
Speed		146 rpm	146 rpm	146 rpm	146 rpm	
Power		5675 kW	6810 kW	7945 kW	9080 kW	
Massmoments / Forces						
Free Forces						
F1v	[±kN]	0	0	0	0	
F1h	[±kN]	0	0	0	0	
F2v	[±kN]	0	0	0	0	
F4v	[±kN]	0	0	0	0	
External Moments						
M1v	[±kNm]	55	0	117	111	
M1h	[±kNm]	48	0	55	96	
M2v *)	[±kNm]	613	426	124	0	
M4v	[±kNm]	4	30	84	34	
Lateral H-Moments M_{LH}						
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]	454	0	0	0	
Ord.6	[±kNm]	0	329	0	0	
Ord.7	[±kNm]	0	0	254	0	
Ord.8	[±kNm]	0	0	0	183	
Ord.9	[±kNm]	0	0	0	0	
Ord.10	[±kNm]	33	0	0	0	
Ord.11	[±kNm]	0	0	0	0	
Ord.12	[±kNm]	0	8	0	0	
Lateral X-Moments M_{Lx}						
Ord.1	[±kNm]	45	0	27	90	
Ord.2	[±kNm]	23	16	5	0	
Ord.3	[±kNm]	56	101	111	142	
Ord.4	[±kNm]	15	118	335	136	
Ord.5	[±kNm]	0	0	26	328	
Ord.6	[±kNm]	6	0	4	0	
Ord.7	[±kNm]	46	0	0	8	
Ord.8	[±kNm]	30	21	2	0	
Ord.9	[±kNm]	1	25	3	2	
Ord.10	[±kNm]	0	6	16	0	
Ord.11	[±kNm]	0	0	10	13	
Ord.12	[±kNm]	2	0	0	2	
Torque variation		[±kNm]	466	334	257	184

* 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 can be calculated as follows: $FL=MLH \times 0.376$ [kN]

X40-B

External forces and moments

Crankshaft type : FCV1 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , LLT-WG Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B
Speed		146 rpm	146 rpm	146 rpm	146 rpm
Power		5675 kW	6810 kW	7945 kW	9080 kW
Massmoments / Forces					
Free Forces					
F1v	[±kN]	0	0	0	0
F1h	[±kN]	0	0	0	0
F2v	[±kN]	0	0	0	0
F4v	[±kN]	0	0	0	0
External Moments					
M1v	[±kNm]	55	0	117	111
M1h	[±kNm]	48	0	55	96
M2v *)	[±kNm]	613	426	124	0
M4v	[±kNm]	4	30	84	34
Lateral H-Moments M_{LH}					
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]	453	0	0	0
Ord.6	[±kNm]	0	329	0	0
Ord.7	[±kNm]	0	0	254	0
Ord.8	[±kNm]	0	0	0	183
Ord.9	[±kNm]	0	0	0	0
Ord.10	[±kNm]	33	0	0	0
Ord.11	[±kNm]	0	0	0	0
Ord.12	[±kNm]	0	8	0	0
Lateral X-Moments M_{Lx}					
Ord.1	[±kNm]	45	0	27	90
Ord.2	[±kNm]	23	16	5	0
Ord.3	[±kNm]	56	101	111	142
Ord.4	[±kNm]	15	118	334	136
Ord.5	[±kNm]	0	0	26	328
Ord.6	[±kNm]	6	0	4	0
Ord.7	[±kNm]	46	0	0	8
Ord.8	[±kNm]	30	21	2	0
Ord.9	[±kNm]	1	25	3	2
Ord.10	[±kNm]	0	6	16	0
Ord.11	[±kNm]	0	0	10	13
Ord.12	[±kNm]	2	0	0	2
Torque variation	[±kNm]	466	334	256	184

* 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 can be calculated as follows: $FL=MLH \times 0.376$ [kN]

X40-B

External forces and moments

Crankshaft type : FCV1 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , Delta-Bypass Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B
Speed		146 rpm	146 rpm	146 rpm	146 rpm
Power		5675 kW	6810 kW	7945 kW	9080 kW
Massmoments / Forces					
Free Forces					
F1v	[±kN]	0	0	0	0
F1h	[±kN]	0	0	0	0
F2v	[±kN]	0	0	0	0
F4v	[±kN]	0	0	0	0
External Moments					
M1v	[±kNm]	55	0	117	111
M1h	[±kNm]	48	0	55	96
M2v *)	[±kNm]	613	426	124	0
M4v	[±kNm]	4	30	84	34
Lateral H-Moments M_{LH}					
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]	457	0	0	0
Ord.6	[±kNm]	0	333	0	0
Ord.7	[±kNm]	0	0	259	0
Ord.8	[±kNm]	0	0	0	189
Ord.9	[±kNm]	0	0	0	0
Ord.10	[±kNm]	36	0	0	0
Ord.11	[±kNm]	0	0	0	0
Ord.12	[±kNm]	0	10	0	0
Lateral X-Moments M_{Lx}					
Ord.1	[±kNm]	45	0	27	90
Ord.2	[±kNm]	22	15	4	0
Ord.3	[±kNm]	55	99	109	139
Ord.4	[±kNm]	15	118	336	137
Ord.5	[±kNm]	0	0	26	330
Ord.6	[±kNm]	6	0	4	0
Ord.7	[±kNm]	47	0	0	9
Ord.8	[±kNm]	31	22	2	0
Ord.9	[±kNm]	1	26	3	3
Ord.10	[±kNm]	0	6	18	0
Ord.11	[±kNm]	1	0	11	14
Ord.12	[±kNm]	2	0	0	2
Torque variation	[±kNm]	469	338	261	189

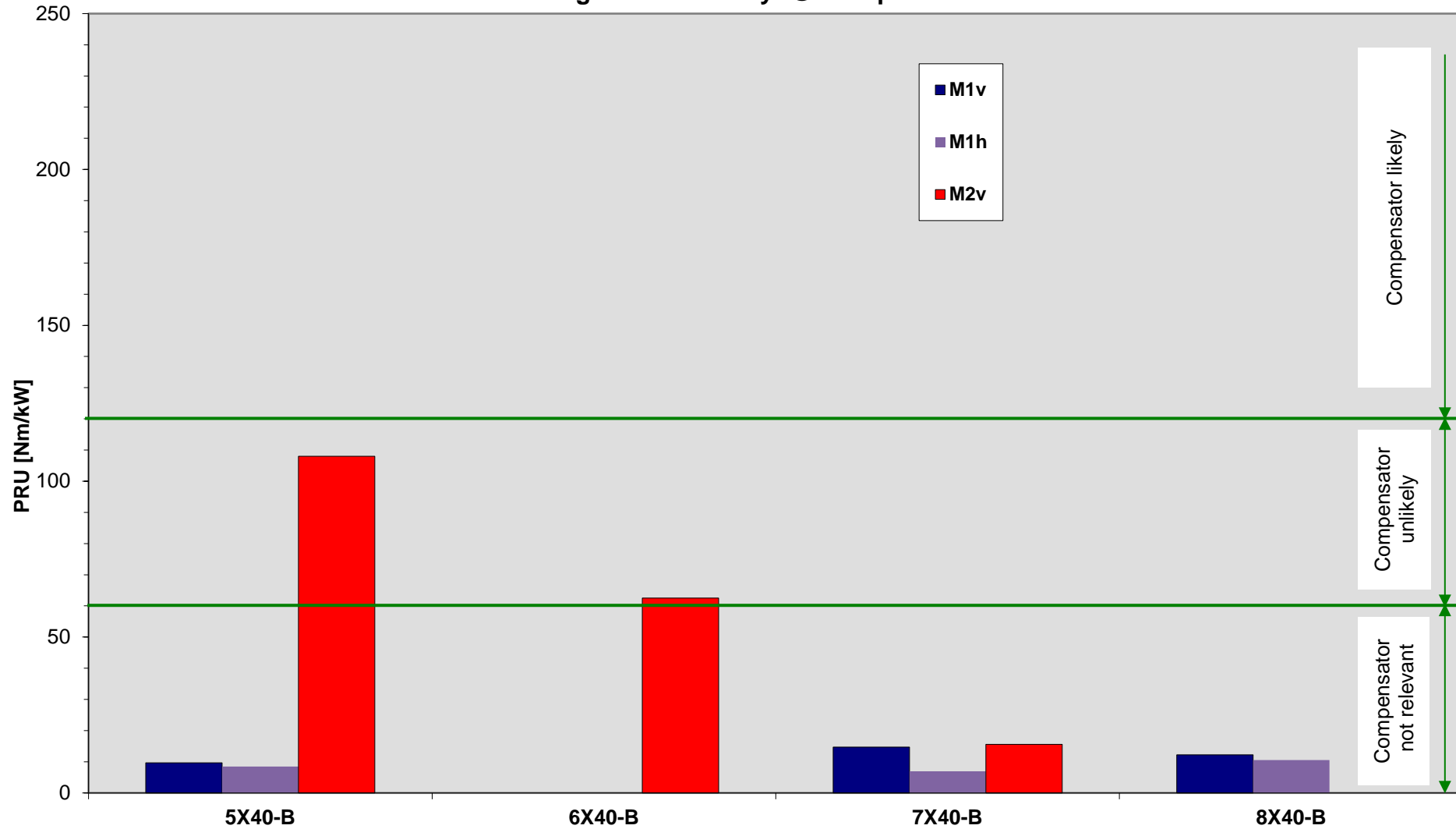
* No engine fitted 2nd order balancer available. If reduction of M2v is needed, an external compensator has to be applied.

The values for other engine ratings are available on request

The resulting lateral guide force can be calculated as follows: $FL=MLH \times 0.376$ [kN]

5-8 X40-B / Free external mass moments
Power Related Unbalance (PRU)
Rating R1 1135 kW/Cyl @ 146 rpm

Crankshaft type: Forged FCV1



X40-B

External forces and moments

Crankshaft type : FCV2 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , Standard Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B
Speed		146 rpm	146 rpm	146 rpm	146 rpm
Power		5675 kW	6810 kW	7945 kW	9080 kW
Massmoments / Forces					
Free Forces					
F1v	[±kN]	0	0	0	0
F1h	[±kN]	0	0	0	0
F2v	[±kN]	0	0	0	0
F4v	[±kN]	0	0	0	0
External Moments					
M1v	[±kNm]	58	0	118	116
M1h	[±kNm]	45	0	57	90
M2v *)	[±kNm]	613	426	124	0
M4v	[±kNm]	4	30	84	34
Lateral H-Moments M_{LH}					
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]	463	0	0	0
Ord.6	[±kNm]	0	338	0	0
Ord.7	[±kNm]	0	0	262	0
Ord.8	[±kNm]	0	0	0	190
Ord.9	[±kNm]	0	0	0	0
Ord.10	[±kNm]	36	0	0	0
Ord.11	[±kNm]	0	0	0	0
Ord.12	[±kNm]	0	9	0	0
Lateral X-Moments M_{Lx}					
Ord.1	[±kNm]	45	0	27	91
Ord.2	[±kNm]	24	17	5	0
Ord.3	[±kNm]	56	102	112	143
Ord.4	[±kNm]	15	120	340	138
Ord.5	[±kNm]	0	0	27	335
Ord.6	[±kNm]	6	0	4	0
Ord.7	[±kNm]	48	0	0	9
Ord.8	[±kNm]	31	22	2	0
Ord.9	[±kNm]	1	26	3	3
Ord.10	[±kNm]	0	6	17	0
Ord.11	[±kNm]	0	0	11	14
Ord.12	[±kNm]	2	0	0	2
Torque variation	[±kNm]	476	343	264	191

* 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 can be calculated as follows: $FL=MLH \times 0.376$ [kN]

X40-B

External forces and moments

Crankshaft type : FCV2 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , Delta Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B
Speed		146 rpm	146 rpm	146 rpm	146 rpm
Power		5675 kW	6810 kW	7945 kW	9080 kW
Massmoments / Forces					
Free Forces					
F1v	[±kN]	0	0	0	0
F1h	[±kN]	0	0	0	0
F2v	[±kN]	0	0	0	0
F4v	[±kN]	0	0	0	0
External Moments					
M1v	[±kNm]	58	0	118	116
M1h	[±kNm]	45	0	57	90
M2v *)	[±kNm]	613	426	124	0
M4v	[±kNm]	4	30	84	34
Lateral H-Moments M_{LH}					
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]	454	0	0	0
Ord.6	[±kNm]	0	329	0	0
Ord.7	[±kNm]	0	0	254	0
Ord.8	[±kNm]	0	0	0	183
Ord.9	[±kNm]	0	0	0	0
Ord.10	[±kNm]	33	0	0	0
Ord.11	[±kNm]	0	0	0	0
Ord.12	[±kNm]	0	8	0	0
Lateral X-Moments M_{Lx}					
Ord.1	[±kNm]	45	0	27	90
Ord.2	[±kNm]	23	16	5	0
Ord.3	[±kNm]	56	101	111	142
Ord.4	[±kNm]	15	118	335	136
Ord.5	[±kNm]	0	0	26	328
Ord.6	[±kNm]	6	0	4	0
Ord.7	[±kNm]	46	0	0	8
Ord.8	[±kNm]	30	21	2	0
Ord.9	[±kNm]	1	25	3	2
Ord.10	[±kNm]	0	6	16	0
Ord.11	[±kNm]	0	0	10	13
Ord.12	[±kNm]	2	0	0	2
Torque variation	[±kNm]	466	334	257	184

* 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 can be calculated as follows: $FL=MLH \times 0.376$ [kN]

X40-B

External forces and moments

Crankshaft type : FCV2 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , LLT-WG Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B
Speed		146 rpm	146 rpm	146 rpm	146 rpm
Power		5675 kW	6810 kW	7945 kW	9080 kW
Massmoments / Forces					
Free Forces					
F1v	[±kN]	0	0	0	0
F1h	[±kN]	0	0	0	0
F2v	[±kN]	0	0	0	0
F4v	[±kN]	0	0	0	0
External Moments					
M1v	[±kNm]	58	0	118	116
M1h	[±kNm]	45	0	57	90
M2v *)	[±kNm]	613	426	124	0
M4v	[±kNm]	4	30	84	34
Lateral H-Moments M_{LH}					
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]	453	0	0	0
Ord.6	[±kNm]	0	329	0	0
Ord.7	[±kNm]	0	0	254	0
Ord.8	[±kNm]	0	0	0	183
Ord.9	[±kNm]	0	0	0	0
Ord.10	[±kNm]	33	0	0	0
Ord.11	[±kNm]	0	0	0	0
Ord.12	[±kNm]	0	8	0	0
Lateral X-Moments M_{Lx}					
Ord.1	[±kNm]	45	0	27	90
Ord.2	[±kNm]	23	16	5	0
Ord.3	[±kNm]	56	101	111	142
Ord.4	[±kNm]	15	118	334	136
Ord.5	[±kNm]	0	0	26	328
Ord.6	[±kNm]	6	0	4	0
Ord.7	[±kNm]	46	0	0	8
Ord.8	[±kNm]	30	21	2	0
Ord.9	[±kNm]	1	25	3	2
Ord.10	[±kNm]	0	6	16	0
Ord.11	[±kNm]	0	0	10	13
Ord.12	[±kNm]	2	0	0	2
Torque variation	[±kNm]	466	334	256	184

* 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 can be calculated as follows: $FL=MLH \times 0.376$ [kN]

X40-B

External forces and moments

Crankshaft type : FCV2 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , Delta-Bypass Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B
Speed		146 rpm	146 rpm	146 rpm	146 rpm
Power		5675 kW	6810 kW	7945 kW	9080 kW
Massmoments / Forces					
Free Forces					
F1v	[±kN]	0	0	0	0
F1h	[±kN]	0	0	0	0
F2v	[±kN]	0	0	0	0
F4v	[±kN]	0	0	0	0
External Moments					
M1v	[±kNm]	58	0	118	116
M1h	[±kNm]	45	0	57	90
M2v *)	[±kNm]	613	426	124	0
M4v	[±kNm]	4	30	84	34
Lateral H-Moments M_{LH}					
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]	457	0	0	0
Ord.6	[±kNm]	0	333	0	0
Ord.7	[±kNm]	0	0	259	0
Ord.8	[±kNm]	0	0	0	189
Ord.9	[±kNm]	0	0	0	0
Ord.10	[±kNm]	36	0	0	0
Ord.11	[±kNm]	0	0	0	0
Ord.12	[±kNm]	0	10	0	0
Lateral X-Moments M_{Lx}					
Ord.1	[±kNm]	45	0	27	90
Ord.2	[±kNm]	22	15	4	0
Ord.3	[±kNm]	55	99	109	139
Ord.4	[±kNm]	15	118	336	137
Ord.5	[±kNm]	0	0	26	330
Ord.6	[±kNm]	6	0	4	0
Ord.7	[±kNm]	47	0	0	9
Ord.8	[±kNm]	31	22	2	0
Ord.9	[±kNm]	1	26	3	3
Ord.10	[±kNm]	0	6	18	0
Ord.11	[±kNm]	1	0	11	14
Ord.12	[±kNm]	2	0	0	2
Torque variation	[±kNm]	469	338	261	189

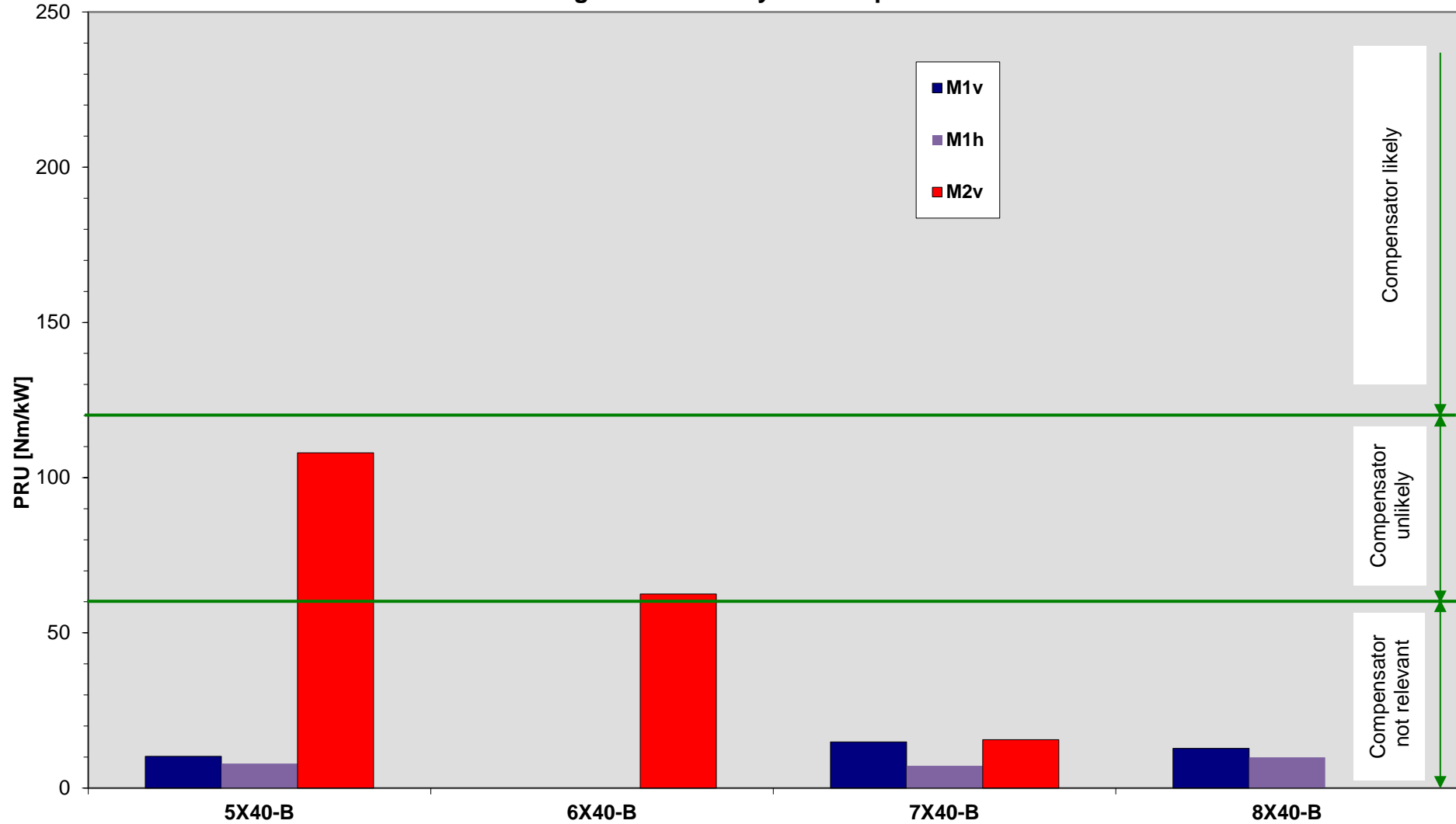
* No engine fitted 2nd order balancer available. If reduction of M2v is needed, an external compensator has to be applied.

The values for other engine ratings are available on request

The resulting lateral guide force can be calculated as follows: $FL=MLH \times 0.376$ [kN]

5-8 X40-B / Free external mass moments
Power Related Unbalance (PRU)
Rating R1 1135 kW/Cyl @ 146 rpm

Crankshaft type: Forged FCV2



X40-B

External forces and moments

Crankshaft type : FCV3 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , Standard Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B
Speed		146 rpm	146 rpm	146 rpm	146 rpm
Power		5675 kW	6810 kW	7945 kW	9080 kW
Massmoments / Forces					
Free Forces					
F1v	[±kN]	0	0	0	0
F1h	[±kN]	0	0	0	0
F2v	[±kN]	0	0	0	0
F4v	[±kN]	0	0	0	0
External Moments					
M1v	[±kNm]	61	0	120	122
M1h	[±kNm]	42	0	59	85
M2v *)	[±kNm]	613	426	124	0
M4v	[±kNm]	4	30	84	34
Lateral H-Moments M_{LH}					
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]	463	0	0	0
Ord.6	[±kNm]	0	338	0	0
Ord.7	[±kNm]	0	0	262	0
Ord.8	[±kNm]	0	0	0	190
Ord.9	[±kNm]	0	0	0	0
Ord.10	[±kNm]	36	0	0	0
Ord.11	[±kNm]	0	0	0	0
Ord.12	[±kNm]	0	9	0	0
Lateral X-Moments M_{Lx}					
Ord.1	[±kNm]	45	0	27	91
Ord.2	[±kNm]	24	17	5	0
Ord.3	[±kNm]	56	102	112	143
Ord.4	[±kNm]	15	120	340	138
Ord.5	[±kNm]	0	0	27	335
Ord.6	[±kNm]	6	0	4	0
Ord.7	[±kNm]	48	0	0	9
Ord.8	[±kNm]	31	22	2	0
Ord.9	[±kNm]	1	26	3	3
Ord.10	[±kNm]	0	6	17	0
Ord.11	[±kNm]	0	0	11	14
Ord.12	[±kNm]	2	0	0	2
Torque variation	[±kNm]	476	343	264	191

* 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 can be calculated as follows: $FL=MLH \times 0.376$ [kN]

X40-B

External forces and moments

Crankshaft type : FCV3 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , Delta Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B
Speed		146 rpm	146 rpm	146 rpm	146 rpm
Power		5675 kW	6810 kW	7945 kW	9080 kW
Massmoments / Forces					
Free Forces					
F1v	[±kN]	0	0	0	0
F1h	[±kN]	0	0	0	0
F2v	[±kN]	0	0	0	0
F4v	[±kN]	0	0	0	0
External Moments					
M1v	[±kNm]	61	0	120	122
M1h	[±kNm]	42	0	59	85
M2v *)	[±kNm]	613	426	124	0
M4v	[±kNm]	4	30	84	34
Lateral H-Moments M_{LH}					
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]	454	0	0	0
Ord.6	[±kNm]	0	329	0	0
Ord.7	[±kNm]	0	0	254	0
Ord.8	[±kNm]	0	0	0	183
Ord.9	[±kNm]	0	0	0	0
Ord.10	[±kNm]	33	0	0	0
Ord.11	[±kNm]	0	0	0	0
Ord.12	[±kNm]	0	8	0	0
Lateral X-Moments M_{Lx}					
Ord.1	[±kNm]	45	0	27	90
Ord.2	[±kNm]	23	16	5	0
Ord.3	[±kNm]	56	101	111	142
Ord.4	[±kNm]	15	118	335	136
Ord.5	[±kNm]	0	0	26	328
Ord.6	[±kNm]	6	0	4	0
Ord.7	[±kNm]	46	0	0	8
Ord.8	[±kNm]	30	21	2	0
Ord.9	[±kNm]	1	25	3	2
Ord.10	[±kNm]	0	6	16	0
Ord.11	[±kNm]	0	0	10	13
Ord.12	[±kNm]	2	0	0	2
Torque variation	[±kNm]	466	334	257	184

* 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 can be calculated as follows: $FL=MLH \times 0.376$ [kN]

X40-B

External forces and moments

Crankshaft type : FCV3 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , LLT-WG Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B
Speed		146 rpm	146 rpm	146 rpm	146 rpm
Power		5675 kW	6810 kW	7945 kW	9080 kW
Massmoments / Forces					
Free Forces					
F1v	[±kN]	0	0	0	0
F1h	[±kN]	0	0	0	0
F2v	[±kN]	0	0	0	0
F4v	[±kN]	0	0	0	0
External Moments					
M1v	[±kNm]	61	0	120	122
M1h	[±kNm]	42	0	59	85
M2v *)	[±kNm]	613	426	124	0
M4v	[±kNm]	4	30	84	34
Lateral H-Moments M_{LH}					
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]	453	0	0	0
Ord.6	[±kNm]	0	329	0	0
Ord.7	[±kNm]	0	0	254	0
Ord.8	[±kNm]	0	0	0	183
Ord.9	[±kNm]	0	0	0	0
Ord.10	[±kNm]	33	0	0	0
Ord.11	[±kNm]	0	0	0	0
Ord.12	[±kNm]	0	8	0	0
Lateral X-Moments M_{Lx}					
Ord.1	[±kNm]	45	0	27	90
Ord.2	[±kNm]	23	16	5	0
Ord.3	[±kNm]	56	101	111	142
Ord.4	[±kNm]	15	118	334	136
Ord.5	[±kNm]	0	0	26	328
Ord.6	[±kNm]	6	0	4	0
Ord.7	[±kNm]	46	0	0	8
Ord.8	[±kNm]	30	21	2	0
Ord.9	[±kNm]	1	25	3	2
Ord.10	[±kNm]	0	6	16	0
Ord.11	[±kNm]	0	0	10	13
Ord.12	[±kNm]	2	0	0	2
Torque variation	[±kNm]	466	334	256	184

* 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 can be calculated as follows: $FL=MLH \times 0.376$ [kN]

X40-B

External forces and moments

Crankshaft type : FCV3 / full crank pin

Rating R1 : 1135 kW/Cyl. / 146 rpm , Delta-Bypass Tier2 Tuning

Engine Type		5X40-B	6X40-B	7X40-B	8X40-B	
Speed		146 rpm	146 rpm	146 rpm	146 rpm	
Power		5675 kW	6810 kW	7945 kW	9080 kW	
Massmoments / Forces						
Free Forces						
F1v	[±kN]	0	0	0	0	
F1h	[±kN]	0	0	0	0	
F2v	[±kN]	0	0	0	0	
F4v	[±kN]	0	0	0	0	
External Moments						
M1v	[±kNm]	61	0	120	122	
M1h	[±kNm]	42	0	59	85	
M2v *)	[±kNm]	613	426	124	0	
M4v	[±kNm]	4	30	84	34	
Lateral H-Moments M_{LH}						
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]	457	0	0	0	
Ord.6	[±kNm]	0	333	0	0	
Ord.7	[±kNm]	0	0	259	0	
Ord.8	[±kNm]	0	0	0	189	
Ord.9	[±kNm]	0	0	0	0	
Ord.10	[±kNm]	36	0	0	0	
Ord.11	[±kNm]	0	0	0	0	
Ord.12	[±kNm]	0	10	0	0	
Lateral X-Moments M_{Lx}						
Ord.1	[±kNm]	45	0	27	90	
Ord.2	[±kNm]	22	15	4	0	
Ord.3	[±kNm]	55	99	109	139	
Ord.4	[±kNm]	15	118	336	137	
Ord.5	[±kNm]	0	0	26	330	
Ord.6	[±kNm]	6	0	4	0	
Ord.7	[±kNm]	47	0	0	9	
Ord.8	[±kNm]	31	22	2	0	
Ord.9	[±kNm]	1	26	3	3	
Ord.10	[±kNm]	0	6	18	0	
Ord.11	[±kNm]	1	0	11	14	
Ord.12	[±kNm]	2	0	0	2	
Torque variation		[±kNm]	469	338	261	189

* 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 can be calculated as follows: $FL=MLH \times 0.376$ [kN]

5-8 X40-B / Free external mass moments
Power Related Unbalance (PRU)
Rating R1 1135 kW/Cyl @ 146 rpm

Crankshaft type: Forged FCV3

