

ELECTRIC HOIST AND WINCH INFORMATION

FEM DATA - SELECTION OF SUITABLE FEM GROUP FOR ELECTRIC OVERHEAD HOISTS

Selection of suitable FEM – Group criteria for hoist type according to working conditions, load spectrum, average daily operating time (hr/day)

The basis for calculations according to FEM standards is a 10 year lifetime for hoists

SELECTION CRITERIA NOTES

Selection is based on load spectrum

- Average operating time per day
- Daily working time in hours
- Starting frequency

The FEM group is determined by the daily operating time and load spectrum
The selection of the correct FEM group enables us to find the most suitable size of hoist for different applications.

The FEM group also specifies the duty factor % (ED%) and the starting frequency of motors

Light	$t \leq 2$	$2 < \text{time} \leq 4$	$4 < \text{time} \leq 8$	$8 < \text{time} \leq 16$
Medium	$t \leq 1$	$1 < \text{time} \leq 2$	$2 < \text{time} \leq 4$	$4 < \text{time} \leq 8$
Heavy	$t \leq 0.5$	$0.5 < \text{time} \leq 1$	$1 < \text{time} \leq 2$	$2 < \text{time} \leq 4$
Severe	$t \leq 0.25$	$0.25 < \text{time} \leq 0.5$	$0.5 < \text{time} \leq 1$	$1 < \text{time} \leq 2$
Hoist group	FEM1Bm	FEM1Am	FEM2m	FEM3m
Duty factor	25% ED	30% ED	40% ED	50% ED
Starts	$\leq 150/\text{hr}$	$\leq 180/\text{hr}$	$\leq 240/\text{hr}$	$\leq 300/\text{hr}$

Load spectrum average daily operating time (hr/day)

Criteria for hoist type according to working conditions

Selection of suitable FEM Group

***Caution:** the specifications on this page are for reference only and are not intended to provide the complete requirements and qualifications of the FEM ratings. Do not rely upon information contained in this table.

Caution: All dimensions and other information is subject to change without notice.

FEM SUMMARY

FEM group		Intermittent duty			Full in operation Operating times in minutes	
FEM	ISO	Cycles per hour	Switches per hour	Duty in %	Low pole	High pole
1Dm	M1	15	90	15	7.5	1.5
1Cm	M2	20	120	20	7.5	2
1Bm	M3	25	150	25	15	2.5
1Am	M4	30	180	30	15	3
2m	M5	40	240	40	30	3.5
3m	M6	50	300	50	30	4
4m	M7	60	360	60	60	5
5m	M8	60	360	60	>60	6
max. 10 switches						

FEM groups	1Dm/M1	1Cm/M2	1Bm/M3	1Am/M4	2m/M5	3m/M6	4m/M7	5m/M8
Load collective / factor of loading spectrum	theoretical use D (hours)							
Low 1/L1: $K = 0.5$ $Km1 = 0.125 = 0.5^3$	800	1600	3200	6300	12500	25000	50000	100000
Middle 2/L2: $0.5 < K < 0.63$ $Km2 = 0.25 = 0.63^3$	400	800	1600	3200	6300	12500	25000	50000
Hart 3/L3: $0.63 < K < 0.8$ $Km3 = 0.5 = 0.8^3$	200	400	800	1600	3200	6300	12500	25000
Very hart 4/L4: $0.8 < K < 1$ $Km4 = 1 = 1^3$	100	200	400	800	1600	3200	6300	12500

CLARIFICATION OF MECHANISMS

FEM Group	1Bm	1Am	2m	3m	4m
ISO Denomination	M3	M4	M5	M6	M7
Duty cycle	25%	30%	40%	50%	60%
Starts per hour	150	180	240	300	360
Theoretical Service Life (hours)	400	800	1600	3200	6300
Class of Operation Time	V0.25	V0.5	V1	V2	V3
Operating Time/Day (hours)	0.5	1	2	4	8