

Improving your Chain's performance

Engineering Coatings on selective components. AEC OBR Chain 4051M14-OBR6-STD

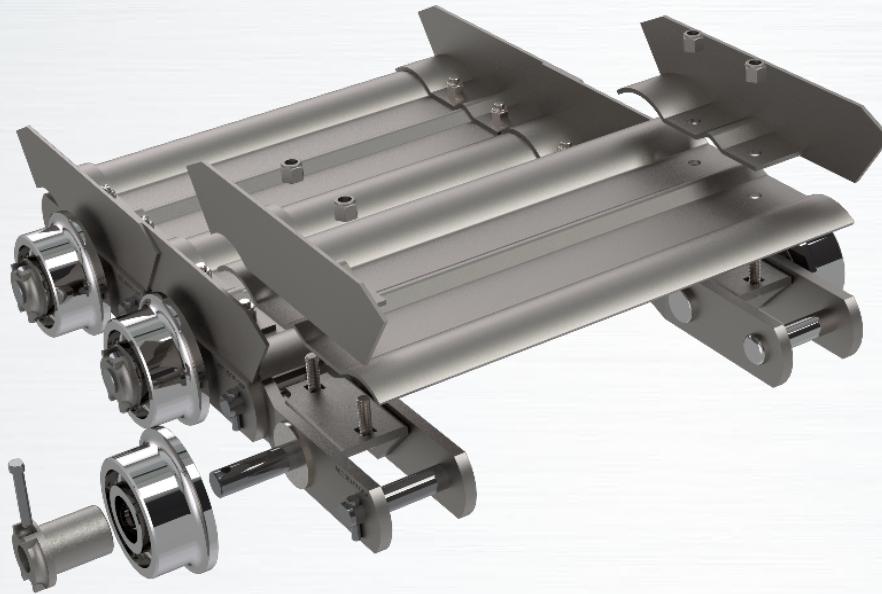
Atlantic Engineering Chain coating facts:

Our Engineering Coatings will not peel, chip, blister or crack.

The coefficient of friction between surfaces of engineering coated steel and untreated steel is much lower than for both mating surfaces of untreated steel.

AEC
ATLANTIC ENGINEERING CHAIN

< Main Carrier Chain with Slats.
Chain 4051M14-OBR6-STD



Friction reduction and other advantages

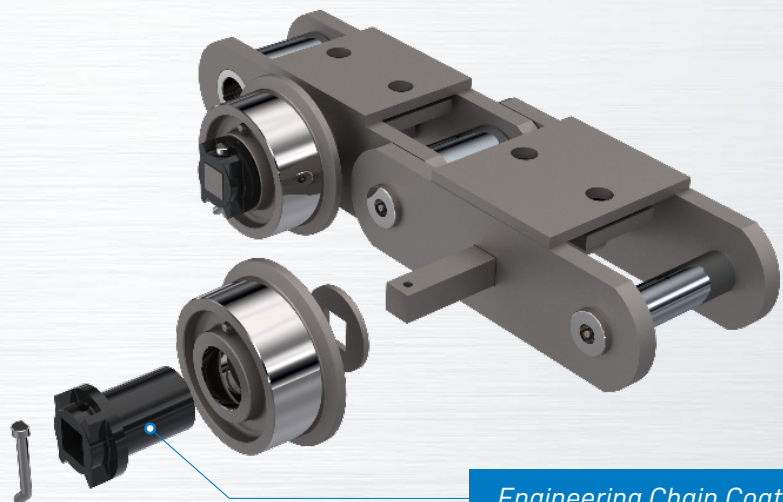
Coated Surfaces Coefficient of 0.27 Vs. untreated dry steel coefficient of 0.39

Galling reduction - Corrosion Protection - Dimensional Stability

Engineering coating over roller pins

Well proved engineering coatings are now available for our Chains. Coated components like pins and bushings dramatically reduce friction coefficient, decrease power consumption and improve the chain life. Reduction of galling in dried lubrication condition is a plus.

Coated Roller Pin for
Chain 4051M14-OBR6-STD.



Engineering Chain Coating

Engineering coating use in chain components

Engineering coating over key chain components will:

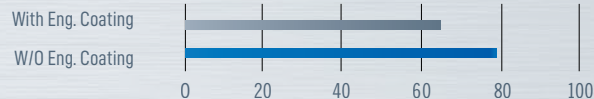
Increase in Double the tentative operational Chain Life.*

Reduces more than 17% the Power Consumption.*

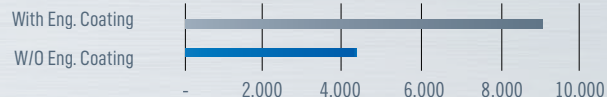
Increases more than 16% the Wear Safety Factor.*

** Values could change for other OBR's Chains/ Application Conditions But it gives a clear idea of the improvements that are achieved with this coating. Our engineering department is available to make the specific calculation for your conveyor*

Nominal Power Consumption Hp



Tentative Operational Chain Life



Chain Wear Safety Factor



Detailed Comparison for Chain 4051M14-OBR-6 With & Without Engineering Coating

MAGNITUDE & SYMBOL	UNIT	4051M14 OBR 6 W/O Eng. Coating	4051M14 OBR 6 With Eng. Coating	%
Mass flow of shredded cane, C_m	t/day	18,000	18,000	
Speed of flow, v	ft/min	43.21	43.21	
Center distance of sprockets, a	ft	131	131	
Mass density	Lb/ft ³	21.84	21.84	
Chain pitch, p	in	12	12	
Number of teeth of driver sprocket, z_1	1	12	12	
Load mass Service Factor	1	1.3	1.3	
Pitch diameter of driver sprocket, D_1	in	46.37	46.37	
Pitch diameter of take-up sprockets (rollers), D_2	in	46.37	46.37	
Width of carrier through, B	in	84	84	
Height of load trough or height of flights, F	in	84	84	
Filling factor of carrier, ϕ_A	1	0.6	0.6	
Number of carrier chain strands, N	1	2	2	
Number of carrier flights, NF	1	274	274	
Number of links per chain strand, X	1	274	274	
Length of each chain strand, Λ	ft	274	274	
Maximum chain strand tension, T_{max}	lbf	41,124	34,353	-16.46%
Power propose at Drive motor	hp	125	125	
Nominal power consumption	hp	78.47	64.71	-17.53%
Tension force at take-up sprockets (rollers), F_T	N	9,046.53	4,860.59	-46.27%
Chain Medium Ultimate Tensile Strength, Breakage, Q_{med}	lbf	400,000	400,000	
Multi-strand factor for conveyor chains, KN	1	1.75	1.75	
Maximum allowable speed of chain, v_{max}	ft/min	101.21	101.21	
Minimum chain safety factor to breakage, S_{Fmin}	1	7	7	
Chain safety factor to breakage, S_F	1	13.10	15.68	16.45%
Tentative operational life of chain, L_O (1 d = 24 h)	h	4,225	8,788	51.91%
Safety factor for wear of chain.	1	0.81	0.97	16.49%
Drive sprocket rotational frequency.	U/min	3.56	3.56	
Nominal rotational frequency of electric motor.	U/min	1,180	1,180	
Speed ratio of speed reducer or transmission	1	331.73	331.73	