Lubricants

The torque-preload relationship of Superbolt[®] tensioners depends on the tensioner body and jackbolt materials, heat treatment, plating, lubricants, and other factors. Superbolt[®] engineers have performed extensive tests to determine the best lubricants for the various materials utilized by Superbolt[®], Inc. In an emergency, a number of commercially available graphite or nickel based lubricant compounds can be used for jackbolt re-lubrication in the field, however, obtained preload may not be accurate.

Copper bearing compounds have not performed well as jackbolt lubricants.

Two custom lubricants, JL-G and JL-M are RECOMMENDED by Superbolt[®]. Both compounds have a higher solids content than commercially available compounds. They have performed better as jackbolt lubricants, particularly in high temperature applications. JL-G and JL-M are available in various container sizes and can be ordered directly from Superbolt[®].

Proper Lubricant should be applied to the tips of the Jackbolts prior to installation. <u>JL-G</u> is a lubricant paste made from selected flaky graphite and pure mineral oil. It has a relatively uniform friction factor of 0.130 under widely varying conditions.

JL-G is used in the assembly of most Superbolt[®] products. Tests show that as long as the lubricant is intact, the torque-preload relationship does not change appreciably in subsequent tightenings. Re-lubrication of jackbolts after lengthy or high temperature service restores Superbolt[®] products to their original performance.

<u>JL-M</u> is a lubricant paste with a high concentration of Molybdenum Disulfide powder. JL-M lubricant has the lowest coefficient of friction available commercially. Friction factors approaches 0.055, once broken in.

In addition to being used on several product lines, this lubricant is used on products with larger jackbolts (roughly 5/8" and up) enabling high bolt preload capacities with a low torque input (approximately 1/2 the torque of JL-G). This also helps reduce wear



on sockets and adds the possibility of using smaller wrenches. JL-M should not be used on applications above 650° F.

As with all lubricants, it is important to apply some to the jackbolts prior to installation.

JL-M MATERIAL SAFETY DATA SHEET

ware ware	SECTION 1 – PRO	The second se		
Product Name: JL-M Lubricant Revised: 03/17/00 Super	100 daes 02/27/02	Manufacturer's Nan		ida 1 O. R. Smith Million
Revised: 03/17/00 Supercedes: 02/27/98 Prepared by: C. Semerod Emergency Information: (412) 279-1149		Manufacturer's Address: 500 Superior Street Carnegie, PA 15106 Manufacturer's Phone #: (412) 279-1149		
CHEMICAL NAME:	SECTION 2 - HAZAI		the second se	
Molybdenum Disulfide	CAS NO.:	OSHA PEL:	ACGIH TLV:	(STEL)
Silica, Fused	1317-33-5	10 mg/m3	10 mg/m3	N/A
Graphite	60676-86-0	0.1 mg/m3	0.1 mg/m3	N/A
Silica, Crystalline	7782-42-5 14808-60-7		2 mg/m3	N/A
Lubricating Oils, Petroleum,	64742-58-1		0.1 mg/m3	N/A
Hydrotreated, Spent	04/42-30-1	5 mg/m3*	5 mg/m3*	10mg/m3*
Residual Oils (Petroleum),	64742-62-7	5 mg/m3*	E 24	backend an do
Solvent Dewaxed	01112-02-1	5 mg/m5	5 mg/m3*	10 mg/m3*
Solvent-Refined Heavy Paraffinic	64741-88-4	5 mg/m3*	5 mg/m3*	10 2*
Distillate (Petroleum)	"Empril a	5 mg/m5	5 mg/m5	10 mg/m3*
Solvent -Dewaxed Hydrotreated	64742-65-0	5 mg/m3*	5 mg/m3*	10 mg/m3*
Heavy Paraffinic Distillate (Petroleum)			5 mg/mo	10 mg/m3"
Hydrotreated Heavy Paraffinic	64742-54-7	5 mg/m3*	5 mg/m3*	10 mg/m3*
Distillate (Petroleum)				10 mg/ms
Proprietary Additives Mixture (<1%)	SA INTEL EDDING IN INSTITUTION OF			
(*) Designates limits set by OSHA and the A	CGIH for oil mist. This pro	duct is sold in a paste fo	rm so misting should r	not occur.
SECTION 3 - PHYSICA	AL DATA	SECTION 4	- FIRE AND EXI	PLOSION DATA
Appearance and Odor: Dark Grey Paste, M	lild Petroleum	Flash Point: 338 degr	ees F	
Boiling Point: > 500 degrees F		Lower Explosive Limit: N/A		
% Volatile: 0%		Upper Explosive Limit: N/A		
		Extinguishing Media:	Carbon Dioxide, Reg	ular Foam, Dry Chemica
Evaporation Rate: < 1 (Ether = 1)		Extinguishing Media: Special Fire Fighting	Carbon Dioxide, Reg Procedures: Fire may	produce dense smoke
Evaporation Rate: < 1 (Ether = 1) Specific Gravity: 4.8 (Water = 1)		Extinguishing Media: Special Fire Fighting	Carbon Dioxide, Reg Procedures: Fire may	produce dense smoke
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