

Excelite TX[®]

THE SYSTEM

Excelite TX. A unique bearing combining proven materials with a three-tiered, self-contained lubrication feature. This bearing was developed for high load, low speed application and is ideally suited for all types of rotating and oscillating motion. Additional lubrication introduced to the bearing where necessary can further performance.

THE ADVANTAGE

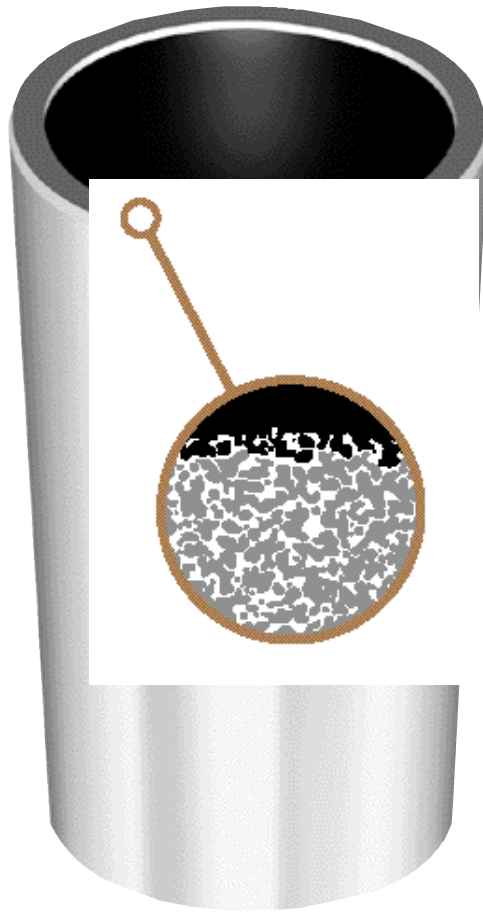
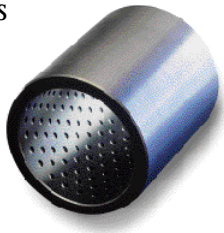
Excelite TX has many cost saving benefits in addition to its performance features. Unlike composite or strip bearings, Excelite TX's entire wall thickness is made of the bearing material. Standard sizes listed are arranged to be compatible with standard cast bronze bushings and are designed to be installed without subsequent sizing operations. The Excelite TX Advantage... versatility of design and cost reduction.

THE APPLICATIONS

- Agricultural Equipment
- Construction Cranes
- Glass Processing Machines
- Packaging Machines
- Golf and Lawn Vehicles
- Hoisting Devices
- Material Handling Trucks
- Hydraulic Cylinders
- Earth Moving Equipment
- Printing Presses
- Paper and Textile Machines
- Filling Equipment
- Cable Handling Equipment
- Valves

EXCELITE DTX[®]

Excelite DTX has grease pockets on the bearing surface. These pockets can store lubricants generated directly from the bearing itself or those introduced externally. These same pockets can also provide a place for foreign contaminants to collect and thus prolong bearing life. Consult our sales engineers for additional application and design information.



Teflon[®] is a registered product trademark of the DuPont Company.

EXCELITE HTX[®]

This self-lubricating material is the extreme duty Excelite bearing material ideally suited for the most demanding applications. Shafting used against Excelite HTX should be Rockwell 45C or higher, and the best possible finish should be maintained. Excelite HTX bearings are available in the sizes listed in the Excelite TX section.



GENERAL CHARACTERISTICS

LOADS AND SPEEDS

The best method for evaluating the acceptability of Excelite TX bearings for any given application is by using PV factor (Pressure x Surface Velocity) where:

P = the load in (psi) on the projected bearing area (Bearing ID x Length).

V = surface velocity of the shaft in feet per minute (SFM).

$$PV = \frac{W}{LD} \times \frac{DN}{12} = \frac{3.14 WN}{12L}$$

W = total load on bearing (pounds)

L = bearing length (inches)

D = ID of bearing (inches)

N = shaft speed (rpm)

MATERIAL	NORMAL UPPER LIMITS FOR EXCELITE MATERIALS			V (sfm)
	PV	P(psi) STATIC	P(psi) DYNAMIC	
EXCELITE TX	40,000	25,000	5,000	220
EXCELITE HTX	70,000	40,000	7,500	40

BP37+ MOLYBDENUM DISULFIDE

CHARACTERISTICS	HIGH FILM STRENGTH	BP37 and Moly has an extremely stable suspension of uniform microscopic Molybdenum Disulfide particles. As an additive Molybdenum Disulfide substantially improves the extreme pressure, anti-wear, and anti-friction capabilities of oils and provides reliable lubrication in those demanding applications that approach boundary lubrication conditions.
VISCOSITY (SUS) @100°F	2420	
@210°F	141	
VISCOSITY INDEX	90	
FLASH POINT (°F)	460	
FIRE POINT (°F)	525	
POUR POINT (°F)	+10	
SAE EQUIV. (VISCOSITY)	130 (EP)**	

** EXTREME PRESSURE

TYPICAL PROPERTIES*

PROPERTIES	EXCELITE TX	EXCELITE HTX
Component Percent		
COPPER	19.0 - 23.0	19.0 - 23.0
IRON	BALANCE	BALANCE
LEAD	—	—
CARBON	.3 - .6	.8 - 1.0
TIN	—	—
ACID INSOLUBLES (MAX)	—	—
MAGNESIUM	—	—
TOTAL OTHER ELEMENTS (MAX.)	2.5	2.5
BALANCE	—	—

Physical & Mechanical Properties

DENSITY (GM PER CU. CM)	5.9 - 6.3	6.2 - 6.6
POROSITY (% OIL BY VOL.)	18 MIN.	15 MIN.
"K" STRENGTH CONSTANT	40,000	60,000
TENSILE STRENGTH	30,000	45,000
ELONGATION (% IN ONE INCH)	2%	1%
YIELD STRENGTH IN COMP. (PSI)**	25,000	40,000

* Bearings may exhibit appreciable differences in properties due to size, shape, thickness, etc.

** For .001" permanent set on test specimens 1-1/4" diameter by 1" long.

Excelite materials may be altered due to operation conditions and life expectancy requirements. It is possible to change the base material by heat treating or alloy change. It is also possible to vary the lubricant specs or add grooving. Changing the fluorocarbon coating is also done.

NO "BREAK IN"

Excelite TX virtually eliminates "break in" because of the Teflon® coating applied to the bearing surface providing low coefficient of friction for start up.

LONG LIFE

As long as load rating and maximum speed rates are adhered to, Excelite TX can provide good life expectancy. The Teflon® coating lasts far beyond "break in", and the fully impregnated P/M under infrastructure takes over to provide expected life.

TEFLON-S® VALUES

PROPERTY	"TEFLON-S" VALUE
TENSILE STRENGTH @ 77°F (psi) @ 25°C (kg/cm ²)	3,000 - 13,600 200 - 920
ELONGATION @ 77°F/25°C (percent)	1 - 9
STATIC COEFFICIENT OF FRICTION AGAINST POLISHED STEEL	0.15
DIELECTRIC STRENGTH, SHORT TIME, 4 MIL FIL (volts/mil) 100 MICRON FILM (volts/micron)	400 - 1400 20 - 100
DIELECTRIC CONSTANT @ 10 ⁶ cycles/sec	1.2 - 600
DISSIPATION FACTOR @ 10 ⁶ cycles/sec	0.002 - 1.0
VOLUME RESISTIVITY, 50% RELATIVE HUMIDITY (ohm-cm)	10 ¹¹ - 10 ¹³
SURFACE RESISTIVITY, 50% RELATIVE HUMIDITY (ohms)	10 ⁹ - 10 ¹³
WATER ABSORPTION (percent)	<2 TO <4
USE TEMPERATURE	-50°F TO +450°F -45°F TO +232°C
RESISTANCE TO ABRASION: GRAMS ABRASIVE PER MIL GRAMS ABRASIVE PER MICRON TEST METHOD: BELL ABRASION TESTER	30 - 50 1.2 - 2.0
HARDNESS: TUKON HARDNESS TEST (knoops) SWARD ROCKER TEST	9 - 18 46 - 62
CONTACT ANGLE (degrees): WATER HEXADECANE	80 - 110 30 - 50

The values shown in this table represent average experience from numerous testing sources and are not intended to be specifications. These values will vary depending upon the individual compositions of the primers and topcoats and the systems used.

All technical advice recommendations, application suggestions and services are rendered by the Seller gratis. They are based on technical data which the seller believes to be reliable and are intended for use by persons having skill and know how at their own discretion and risk. Seller assumes no responsibility for results obtained or damages incurred from their use by Buyer in whole or in part.



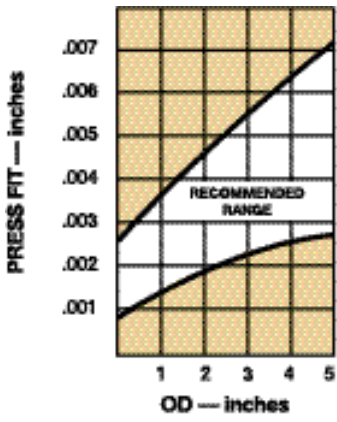
INSTALLATION and SIZING

Bearings are usually installed by means of a shouldered arbor plug inserted in an arbor press. (See chart of press fit values below.) A chamfer in the housing bore is necessary to serve as a lead for the bearing. An unchamfered edge might shear metal from the bearing OD, seriously reducing the

press fit. The OD on the lead end of the bearing acts as a pilot. Likewise, the ID chamfer in the bearings serves as a lead when the shaft is inserted. Out-of-roundness is corrected when the bearing is pressed into the housing.

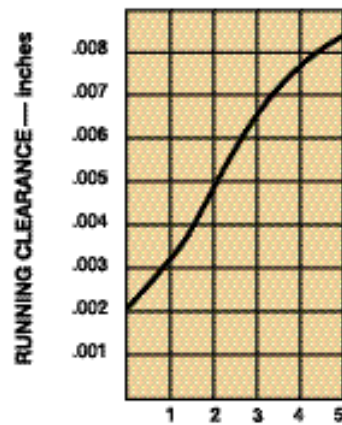
PRESS FIT VALUES / BEARING CLEARANCE / ID CLOSE-IN

PRESS FIT VALUES



Considerable force is required to seat large bearings when press fit approaches the top of the recommended range. Excelsite TX bearings can tolerate these press fits and are necessary to keep the bearings secure in the housing.

BEARING CLEARANCE



ID CLOSE-IN

As related to wall thickness (Approximate Values) for Normal Press Fit

