## INTRODUCTION

## PISTONS

TSC offers a full range of mud pump pistons for both triplex and duplex pumps. They are:

- · Bonded urethane pistons.
- Bonded rubber pistons.
- Replaceable rubber pistons.
- Endurance Premium Bonded Piston.



### **BONDED URETHANE PISTON**

These pistons are constructed of double durometer urethane, bonded to a solid metal hub. Double durometer urethane is designed to provide optimum performance in oil-based mud and high drilling pressures.

#### Features

- Rated for all drilling operations.
- Maximum operating temperature is 180 °F.
- High pressure mud pump service.
- Extended service life.



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## INTRODUCTION

### **N'DURALL PREMIUM BONDED PISTON**

TSC's "N'durall" mud pump piston improves drilling contractor economics through advances in technology, improved process control and increased drilling penetration rates.

#### Chemistry

Manufactured from advanced polymer compounds, the advances in chemistry ultimately provide superior mechanical values and chemical resistance. The increased mechanical values provide resistance to reciprocating pump psitons biggest enemies listed below.

- Heat.
- Abrasion.
- Extrusion.

The advanced polymer compound provides strength to withstand chemical attack from additives used in today's oil, synthetic and water based drilling fluids. The compound also has improves abrasion resistance from drilling solids suspended in drilling muds and excels in high temperature performance capable of operating in fluid temperature up to 300°F.

#### **Improved Process Control**

The "N'durall" carries stamped batch numbers on the piston body for use in monitoring manufacturing dates and as an aid in rotating shelf stock.

#### Design

The single durometer design and open mold casting contribute to overall performance and improved economics.

#### Machining

CNC machining of steel piston heads yields close tolerances for improved performance.

#### Applications

- High Pressure Drilling.
- Elevated Mud Temperature.
- Synthetic Drilling Fluid.
- Ceramic and Zirconia Liners.
- Chrome Sleeved Liners.



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## INTRODUCTION

### **BONDED RUBBER PISTON**

TSC pistons are constructed of nitrile rubber bonded to a solid metal hub. The oil resistant rubber is designed to provide optimum performance in oil base or water base mud and high drilling pressures.

#### Features

- High tensile strength.
- Rated for all drilling operations.
- Maximum operating temperature is 250°F.
- Extended service life.



### **REPLACEABLE RUBBER PISTON**

TSC replaceable rubber pistons are made with nitrile rubber to resist extrusion and abrasion. These pistons are fully interchangeable with most other manufactures products. Available sizes range from 3" through 7-1/2" and series are A, B, K and L.

#### Features

- High tensile strength.
- Rated for all drilling operations.
- Maximum operating temperature is 250°F.
- Extended service life.





6-3/4 x 8

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**TSC** 

# **FLUID END EXPENDABLES**

F-650

#### **EMSCO**

		LINER GASKETS		PIS	rons		PISTON RUBBER	
PART NUMBE		PART NUMBER	URETHANE BONDED	RUBBER BONDED	N'DURALL BONDED	REPLACEABLE RUBBER	PART NUMBER	
TS-0146-40HP		G-281 *	LLU-40-K15	LL-40-K15	HPW-40-K15	I-40-K15	TM-40-KR	
TS-0146-44HP		G-281 *	LLU-44-B15	LL-44-B15	HPW-44-B15	I-44-B15	TM-44-BR	
TS-0146-50HP		G-281 *	LLU-50-B15	LL-50-B15	HPW-50-B15	I-50-B15	TM-50-BR	
TS-0146-54HP		G-281 *	LLU-54-B15	LL-54-B15	HPW-54-B15	I-54-B15	TM-54-BR	
TS-0146-56HP		G-281 *	LLU-56-B15	LL-56-B15	HPW-56-B15	I-56-B15	TM-56-BR	
TS-0146-60HP		G-281 *	LLU-60-B15	LL-60-B15	HPW-60-B15	I-60-B15	TM-60-BR	
TS-0146-62HP		G-281 *	LLU-62-L15	LL-62-L15	HPW-62-L15	I-62-L15	TM-62-LR	
TS-0146-64HP		G-281 *	LLU-64-L15	LL-64-L15	HPW-64-L15	I-64-L15	TM-64-LR	
TS-0146-6	66Cr	G-281 *	LLU-66-L15	LL-66-L15	HPW-66-L15	I-66-L15	TM-66-LR	
VALVES, SEATS, SPRINGS GASKETS								
4 WEB DESIGN		3 WEB DESIGN	FULL OPEN (1)	FULL OPEN (2)			PART NUMBER	
TS-5-M5B5		-	-	TS-5-V1	VALVE COVER GASKET		G-733 *	
TS-5-DDB1		-	-	TS-5-S1	CYLINDER HEAD GASKET		G-281 *	
TS-5710-111		-	-	TS-5710-111	WEAR PLATE GASKET		N/A	
e) TS-5-WI		-	-	TS-5-FI	EXTENSION ROD SEAL		-	
-		-	-	-	EXTENSION ROD BAFFLE		-	
PISTON ROD & EXTENSION ROD								
RUU I		THREADED TYPE PISTON ROD	CLAMP TYPE PISTON ROD	SUB ROD	THREADED TYPE EXTENSION ROD		CLAMP TYPE EXTENSION ROD	
N/A TM	/I-NUT	N/A	TM-151	N/A	N/A		TMF65-01-06	
FLUID END MODULE								
FLUID END MODULE STUDDED				MODULE SEAL SET		STUDS & NUTS SET		
TS-6318-0151-00				EALKIT	TMF05-STUDSET			
	PART NUMBE TS-0146-4 TS-0146-5 TS-0146-5 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-6 TS-0146-7 TS-5-M5 TS-5-DE TS-5-DE TS-5-DE TS-5-VE	PART NUMBER   TS-0146-40HP   TS-0146-50HP   TS-0146-50HP   TS-0146-50HP   TS-0146-60HP   TS-0146-62HP   TS-0146-62HP   TS-0146-66Cr   TS-0146-56HP   TS-0146-64HP   TS-0146-64HP   TS-0146-56HP   TS-0146-64HP   TS-0146-56HP   TS-0146-54HP   TS-0146-64HP   TS-0146-56HP   TS-0146-56HP   TS-0146-64HP   TS-0146-56HP   TS-5-M5B5   TS-5-M5B5   TS-5-VUI   TS-5-WI   TS-5-WI   FSTUD   N/A PISTON NUA	LINERS GASKETS   PART PART   NUMBER 9ART   TS-0146-40HP G-281*   TS-0146-40HP G-281*   TS-0146-50HP G-281*   TS-0146-50HP G-281*   TS-0146-50HP G-281*   TS-0146-50HP G-281*   TS-0146-60HP G-281*   TS-0146-60HP G-281*   TS-0146-62HP G-281*   TS-0146-64HP G-281*   TS-0146-66Cr G-281*   TS-0146-66Cr G-281*   TS-0146-66Cr G-281*   TS-5-NDB1 G-281*   TS-5-DDB1 -   TS-5-VVI -   N/A TM-NUT<	LINERS   GASKETS     PART NUMBER   PART NUMBER   URETHANE BONDED     TS-0146-40HP   G-281*   LLU-40-K15     TS-0146-44HP   G-281*   LLU-40-K15     TS-0146-50HP   G-281*   LLU-50-B15     TS-0146-56HP   G-281*   LLU-56-B15     TS-0146-60HP   G-281*   LLU-60-B15     TS-0146-60HP   G-281*   LLU-62-L15     TS-0146-62HP   G-281*   LLU-64-L15     TS-0146-66CP   G-281*   LLU-64-L15     TS-0146-66CP   G-281*   LLU-66-L15     TS-0146-66CP   G-281*   LLU-66-L15     TS-0146-66CP   G-281*   LLU-66-L15     TS-0145-50B1   G-281*   LLU-66-L15     TS-5-DB1   SaweB DESIGN   FUL OPEN (1)     TS-5-VI   J.   -     TS-5-WI   J.   -     TS-5-WI   J.   -     TS-5-WI   J.   -     ROD   TM-NUT   N/A     N/A   TM-NUT   TM-151	LINERS   GASKETS   PIST     PART NUMBER   PART NUMBER   URETHANE BONDED   RUBBER BONDED     TS-0146-40HP   G-281*   LLU-40-K15   LL-40-K15     TS-0146-40HP   G-281*   LLU-40-K15   LL-40-K15     TS-0146-50HP   G-281*   LLU-50-B15   LL-50-B15     TS-0146-50HP   G-281*   LLU-64-B15   LL-50-B15     TS-0146-50HP   G-281*   LLU-60-B15   LL-60-B15     TS-0146-60HP   G-281*   LLU-61-L15   LL-60-L15     TS-0146-60HP   G-281*   LLU-64-L15   LL-64-L15     TS-0146-60HP   G-281*   LLU-66-L15   LL-64-L15     TS-0146-60Cr   G-281*   LLU-66-L15   LL-60-L15     TS-0146-60Cr   G-281*   LLU-66-L15   LL-60-L15     TS-5-M5B5   -   .   TS-5-V1     TS-5-M5B5   -   .   TS-5-V1     TS-5-710-111   -   .   TS-5710-111     TS-5-WI   -   .   .   .     PISTON ROD STUD   PISTON ROD	LINERS   GASKETS   PISTONS     PART NUMBER   PART NUMBER   PART NUMBER   VRETHANE BONDED   RUBBER BONDED   N'DURALL BONDED     TS-0146-40HP   G-281*   LLU-40-K15   LL-40-K15   HPW-40-K15     TS-0146-50HP   G-281*   LLU-4-B15   LL-44-B15   HPW-50-B15     TS-0146-50HP   G-281*   LLU-50-B15   LL-50-B15   HPW-50-B15     TS-0146-56HP   G-281*   LLU-56-B15   LL-56-B15   HPW-56-B15     TS-0146-60HP   G-281*   LLU-60-B15   LL-60-B15   HPW-60-B15     TS-0146-60HP   G-281*   LLU-60-B15   LL-60-L15   HPW-60-L15     TS-0146-66Cr   G-281*   LU-66-L15   LL-60-L15   HPW-66-L15     TS-0146-66Cr   G-281*   LU-66-L15   LL-60-L15   HPW-66-L15     TS-0146-66Cr   G-281*   LU-66-L15   LL-60-L15   HPW-66-L15     TS-5-M5E5   -   -   TS-5-V1   VALVE COV     TS-5-T0-111   -   -   TS-5-T0-111   WEAR PLA     TS-5710-111   -   -	LINERS   GASKETS   PISTONS     PART NUMBER   PART NUMBER   VRETHANE BONDED   RUBBER BONDED   N'OURALL BONDED   REPLACEABLE RUBBER     TS-0146-40HP   G-281*   LLU-40-K15   HPW-40-K15   I-40-K15     TS-0146-40HP   G-281*   LLU-40-K15   LL-40-K15   HPW-40-K15   I-40-K15     TS-0146-60HP   G-281*   LLU-50-B15   LL-50-B15   HPW-50-B15   I-50-B15     TS-0146-50HP   G-281*   LLU-60-B15   LL-60-B15   HPW-56-B15   I-56-B15     TS-0146-60HP   G-281*   LLU-60-B15   LL-60-B15   HPW-60-B15   I-60-B15     TS-0146-60HP   G-281*   LLU-60-L15   LL-60-L15   HPW-60-B15   I-60-L15     TS-0146-60Cr   G-281*   LLU-60-L15   LL-60-L15   HPW-60-L15   I-60-L15     TS-0146-60Cr   G-281*   LLU-60-L15   LL-60-L15   HPW-60-L15   I-60-L15     TS-0146-60Cr   G-281*   LLU-60-L15   LL-60-L15   HPW-60-L15   I-60-L15     TS-510-ES   SUB   SUB   CYLINDER HEAD GASKET   S	

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