

# Sealing Mixers

## The Challenge

Manufacturers use Top Entry, Side Entry and Static Mixers for a wide variety of applications in Chemical Processing including: Blending, suspending solids, heat transfer, solids wet-out, polymerization, dissolving, shearing, mass transfer, complex chemical reactions and hydrogenation. Mixers are available up to 3500 HP for use in bench scale, pilot scale, semi-works and full-scale operations. Installations include: Mix tanks, polymerizers, storage tanks, pipes, reactors, crystallizers and columns.

Typically mixer shafts rotate and orbit the shaft axis making shaft sealing difficult. Shafts also suffer “whip” as they operate due to radial forces acting on mixing blades which can cause seal faces to separate and leak.

## The Chesterton Solution

Chesterton has established a series of seals which include mixer versions of standard seal models such as the 155, 180M, 440, 255MB, 280MB and 280M. The “M” designation indicates the seal was designed with additional clearance to allow shaft whip and radial movement in excess of standard designs. The MB designation indicates the seal is designed for mixers and incorporates a bearing to support the shaft adjacent to the mechanical seal.

Designs are available for mixers manufactured by Lightnin, Philadelphia, Chemineer, De Detrich, Ekato, Pfadler, and Ross. Chesterton’s established designs have been designed to fit specific mixer models.

Chesterton has developed designs with enhanced clearance to allow for shaft movement. Dual seal designs are “stack seals” which float inside the seal gland while keeping the seal faces together during orbiting or whipping of the mixer shaft. Equipment which suffers excessive movement can be supported via a bearing mounted above the seal or via a bushing installed inboard of the mechanical seal.

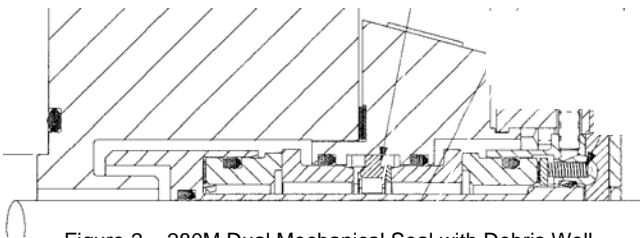
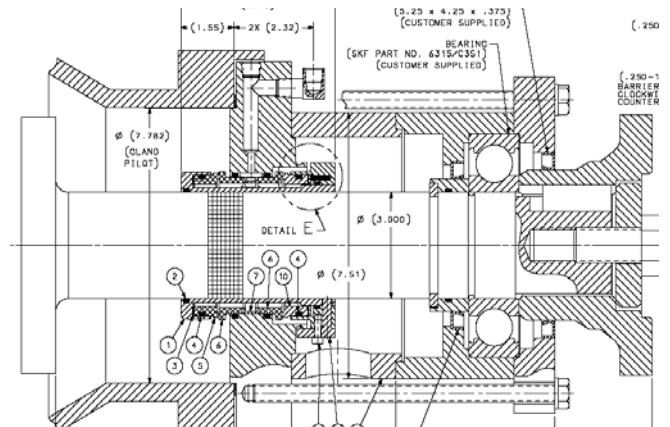


Figure 2 – 280M Dual Mechanical Seal with Debris Well



Figure 1 – 280M Dual Mechanical Seal with Bearing



### Key Features and Benefits:

- ◆ **Designed to Fit Equipment**  
No adaptation to fit equipment
- ◆ **Seal Faces Designed with Additional Clearance**  
Allows radial and orbital motion
- ◆ **Bearing Supported Seals are Available**  
Supports shaft with radial bearing

The manufacturers are in no way associated or affiliated with A.W. Chesterton Company. This reference to the manufacturer’s equipment is intended solely to identify products of this other manufacturer for which A.W. Chesterton Company designed its seals to be compatible.

### A.W. Chesterton Company

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Install Drg #	Manufacturer	MODEL	Seal Item #	Seal Description
36422	AHLMIX CHEMICAL MIXER	AM25-20	187463	280 70M SA SSC/SSC TI/S 187463
34947	ASCI/CHEMINEER REACTOR		631474	222-1 -40 SA TCCBSCH550631474+
35156	BELOIT CORP	LX 500 MIXER	644954	280 65M SASSCSCCBSSCTIS644954
35377	CHANGED TO	DRAWING IN BOX	131921	4410 -64 SA CB/SSC S K131921
34961	CHEMICAL MIXER		627956	280M -36 SA TCTCCBTC 627956
36852	CHEMINEER	14HTD/N-800	265544	180MJ -68 SA CBSSC SFKM265544
36676	CHEMINEER	HTN-4	242313	280MB 3.509 SA CB/TC S 242313
36675	CHEMINEER	UNKNOWN	242310	280M -48 SA TC/TC S K242310
35601	CHEMINEER	14HTD/N-800	171159	280MJ -68 SA CB/TC S AF 171159
35596	DOUBLE COOLING MIXER		171114	HVS 80M SA AWC100 S FKM 171114
36616	EKATA	AGITATOR	294141	442 120M SA RSC/CB S FKMSPACER
36749-1	EKATO MIXER		264009	170 100M SA SSC/SSC S 264009+
36764-1	IMPLO	AGGITATOR	264279	442 -35.5 SA SC/SC TI AF
36658	INGERSOLL-RAND	HI-SHEAR MIXER	242242	999 -46 SA SSC/SSC TIFKM242242
36591	ITT	HIGH SHEAR MIXER	237996	4400H-CW 45M SA SSCCBSAF237996
36717	LIGHTIN		242530	440/1210 -16SACBSCSFFDA242530+
35018	LIGHTING	MIXER	631988	280M -16 SA CB/SSC 631988
35020	LIGHTING	MIXER	629220	280M -20 SA CB/SSC S 629220
35019	LIGHTING	MIXER	629212	280M -16 SA CB/SSC 629212
35334	LIGHTNIN		802912	280M -32 SA CB/TC S FKM 802912
35134	LIGHTNIN	APT 2 MIXER	642435	280M -28 SA TCTC S C505 642435
36575	LIGHTNIN	UNKNOWN	237926	280M -24 SA TCTCCBTC SAF237926
36461	LIGHTNIN	64Q16	177107	280M -41 SA SSC/SSC CERS177107
35388	LIGHTNIN	MIXER	131682	4410 -28 SA CBSC NOIGCS 131682
36631	LIGHTNIN (ISS PLT INC)	35VSA60	295488	442M -28 SA RSC/RSC SEP295488+
35365	LIGHTNIN MIXER	5VS200	639779	442M -48 SA CB/RSC S EP
35325	LIGHTNIN' MIXER		802942	222 -20 SA RSCCB 802942 MERK
35164	LIGHTNING MIXER		647148	280M -36 SA TCTC S C505 647148
34937	LIGHTNING MIXER		626903	222-1 -20 SA RSC/CB S 626903
35629	LIGHTNING PUMP	C6MA	295214	156 -20 SA TC/TC S FKM 295214
35222	LINK/MIXER		637563	4400H-CW 32M SA SSCCB S K4079
35223	LINK/MIXER		637563	4400H-CW 32M SA SSCCB S K4079
35231	MIXER		800109	442M -36 SA DUAL CBRSCS 800109
34104	MIXER		673182	255 -14 SA SSC/CB SV680 673182
35161	MIXER		644920	442M -56 SA RSC/RSC S EP
36379	MIXER ENGINEERING STAN	PV & 3830	171632	222 -20 SA TCCB S K4079 171632
35002	NETCO	MIXER	631489	280 -08 SA TCTCCBTC S 631489
35338	PFAUDLER	5" TW	810707	440 -28 SA CBRSEP BTB 810707
36842	PFAUDLER GLASS LINED	VERTICAL REACTOR	265411	999 -28 SA CB/CR S FKM 265411
34912	PHILADELPHIA	MIXER	699478	225MB -35.5 SA 699478
36857	PHILADELPHIA GEAR	MU 300	265488	225MB -23.5 SA TCCBSCCB S +
36593	PHILADELPHIA MIXER	UNKNOWN	237643	280 -28 SA TC/SSC S K 237643
35586	PHILADELPHIA MIXER		170302	999 -60 SA SCCBTISKAV494170302
35335	PHILLY MIXER		802913	280M -44 SA CB/TC S FKM 802913
36753-1	PROCHEM	33PBGL50	263700	ISS -32 SA S/EP 263700+
36440	ROSS ENG	V-350	192115	442 -48 SA RSCCB S C505 192115
35486	RYTON MIXER		135219	999 -24 SA CB/SSC S 135219
36661	SATAKE	MIXER	242261	280 120M SA CB/SSC S F 242261
36526	STELZER RUEHRTECHNIK	MIXER	218818	4410 80M SA CBPO22/SC S 218818
35377-3	TOP DRIVEN ROTOR	HS2000	131921	4410 -64 SA CB/SSC S K131921
35580	TOYOKI-AGITATOR	TSV-8	169563	442 50M SA CRCBSFKMDUAL 169563
35066		MIXER	633663	280M -64 SA CB/TC S KEP 633663
36366		TOP ENTRY MIXER	171017	4400H-CW 65M SA SSCCB658171017

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