

Maximize Your Extruder Output While Optimizing Your Electrical Efficiency!

Uniloy is proud to introduce this month's web posting which features the UR Series High Output, High Efficiency Extruder Screw for your Uniloy Reciprocating Screw blow molding machine. The benefits of this technology are:

- Increases machine output, decreases melt temperature, and decreases extruder drive energy costs.
- Higher machine output combined with lower melt temperatures should result in faster cycle times and increased part trim-ability.
- Delivers these productivity gains without sacrificing a homogeneous mix.
- Lower melt temperatures reduce the chances of material degradation and enhance the appearance of the molded output. This is particularly important in taste and/or odor sensitive applications.
- Provides for consistent cycle times and parison weights.
- Reduces the requirement for barrel heating and cooling to be called for during production.

These screws are available for the following Reciprocating Screw machine models:

- 250R1
- 250R1 Extended Shot
- 5700
- 5800
- 350R1
- 350R2
- 350R3
- 350R4
- 400R11
- 400R20
- 400R25



Choosing The Right Extruder Screw For Your Application

The UR Series High Output, High Efficiency Extruder Screw is the latest chapter in the history of Uniloy extruder screw offerings. Uniloy has provided General Purpose and Generation 1 High Output screws in the past, and we continue to offer these. So based on these three screw geometry choices, which one is right for you? The answer lies in examining these questions:

- How much Plastic Throughput is required?
- Is a Special Flight Coating required?
- Is Outstanding Mixing required?

Plastic Throughput

The plastic throughput available depends on the size of the extruder motor and the speed that the screw is turned. The first chart compares the maximum throughput of each of the 3 types of screws we offer. The second chart provides extruder screw part numbers.

Machine Model	Screw Diameter	Extruder Motor (hp)	Screw Speed (rpm)	Throughput in lbs/hr.		
				UR Series	Generation 1	General
				High Output	High Output	Purpose
250R1, 250R1 Extended Shot	2.5"	50	150	325	320	275
5700, 350R1, 5800, 350R2, 350R3	3.5"	75	100	620	550	480
350R1, 5800, 350R2, 350R3	3.5"	100	135	780	680	600
350R2, 350R3, 350R4	3.5"	125	150	845	725	650
400R11, 400R20, 400R25	4.0"	125	115	875	800	750

Machine Model	UR Series High Output			Generation 1 High Output	General Purpose
	Colmonoy 56 With Gearhead Mixer	Colmonoy 56 With No Mixer	Colmonoy 83 With Gearhead Mixer	Colmonoy 56 With Spiral Mixer	Colmonoy 56 With Maddox Mixer
250R1	11007290	10430426	11007288	10503715	10411280
250R1 Extended Shot	11007291	10409831	11007289	11007310	10503935
5700, 350R1, 5800	10878265	10409829	10878248	10503721	10411390
350R2, 350R3	10878266	10409786	10879326	10409140	10411377
350R4	11007293	10409830	11007294	10409293	10411383
400R11, 400R20	11007296	10409813	11007297	10442267	10409456
400R25	11007298	10418476	11007299	11007311	10411379

Flight Coatings

All Uniloy extruder screws feature hardened flights. The purpose for this treatment is to prevent premature wear of the top of the flights. Wear in this area allows increased amounts of plastic to pass between the top of the flight and the inside surface of the barrel. As wear increases, extruder throughput decreases and shear heat increases, which raises the melt temperature of the extruded resin. There are many coatings available to choose from, we feature the following:

- Colmonoy 56 - Contains wear resistant chromium borides and carbides. Between Colmonoy Nos. 6 and 5 in chemistry and hardness. Better ductility and impact resistance than No. 6. Finished with carbide tools and grinding. Rockwell C hardness of 50 to 55. This is our standard screw coating.
- Colmonoy 83 - Tough nickel chromium tungsten boron matrix alloy containing chromium carbides with the addition of tungsten-carbide particles for excellent abrasive wear protection. Excellent edge retention. Rockwell C hardness 50 to 55. This coating is recommended for abrasive applications such as colorant and/or calcium carbonate additives.

- Tungsten Carbide Encapsulation - Full coverage including top, sides, and root of the feed screw flights. This coating consists of 88% Tungsten and 12% Cobalt providing ultimate abrasion resistance to the entire screw. This option is available in combination with the Colmonoy 83 flight treatment upon request.

Mixers

The UR Series High Output, High Efficiency Screw is available either with a gearhead mixer or without a mixer. The gearhead mixer provides a superior homogeneous mix and is suitable for resins with color additives. All screws with gearhead mixers are made from base material 4340 HTSR. This material is tougher with higher fatigue strength than 4140 which is the standard extruder screw base material. Testing in the Uniloy Lab shows that a screw with a gearhead mixer provides the best mixing of any screw we offer.



Extruder Barrel Liners

Uniloy also offers a complete menu of extruder barrels to go along with the screws. Under normal running conditions, extruder barrel life should be two to three times longer than that of the screw. There are two barrel liners to choose from:

- Wexco 666 liner - A tough general-purpose nickel –chrome alloy liner with boron and silicon hardening agents. This liner has a Rockwell C hardness of 60-63.
- Wexco 777 liner - An upgraded version of 777-Durocast. This alloy is spherical-shaped tungsten bound in a chromium nickel matrix to provide superior abrasion corrosion wear resistance. This liner has a Rockwell C hardness of 65.

Machine Model	Wexco 666 Xaloy 102	Wexco 777 Xaloy 800
250R1, 250R1 Extended Shot	10411281	11007302
5700	11007309	11007304
350R1, 5800	10411175	10879441
350R2, 350R3	10411139	10443853
350R4	10411262	11007305
400R11, 400R20	10409455	11007306
400R25	10411378	11007308

- Note: ***Wexco 666 and Xaloy 102 are similar liners and Wexco 777 and Xaloy 800 are similar liners.***

Barrel and Screw Pairing

The standard pairing for good compatibility is a Colmonoy 56 screw with a Wexco 666 barrel as well as a Colmonoy 83 screw with a Wexco 777 barrel. It is not recommended to mix and match the barrels and screws because accelerated wear can sometimes occur in the weaker component.

Sales and Service

For more information on this product offering or any other machine upgrade, please contact your local Uniloy Parts Sales Representative. Trained Uniloy Service Representatives are available to assist in the installation of these packages at your facility.