



shaping your dreams

FASTENER PRODUCT SOLUTIONS

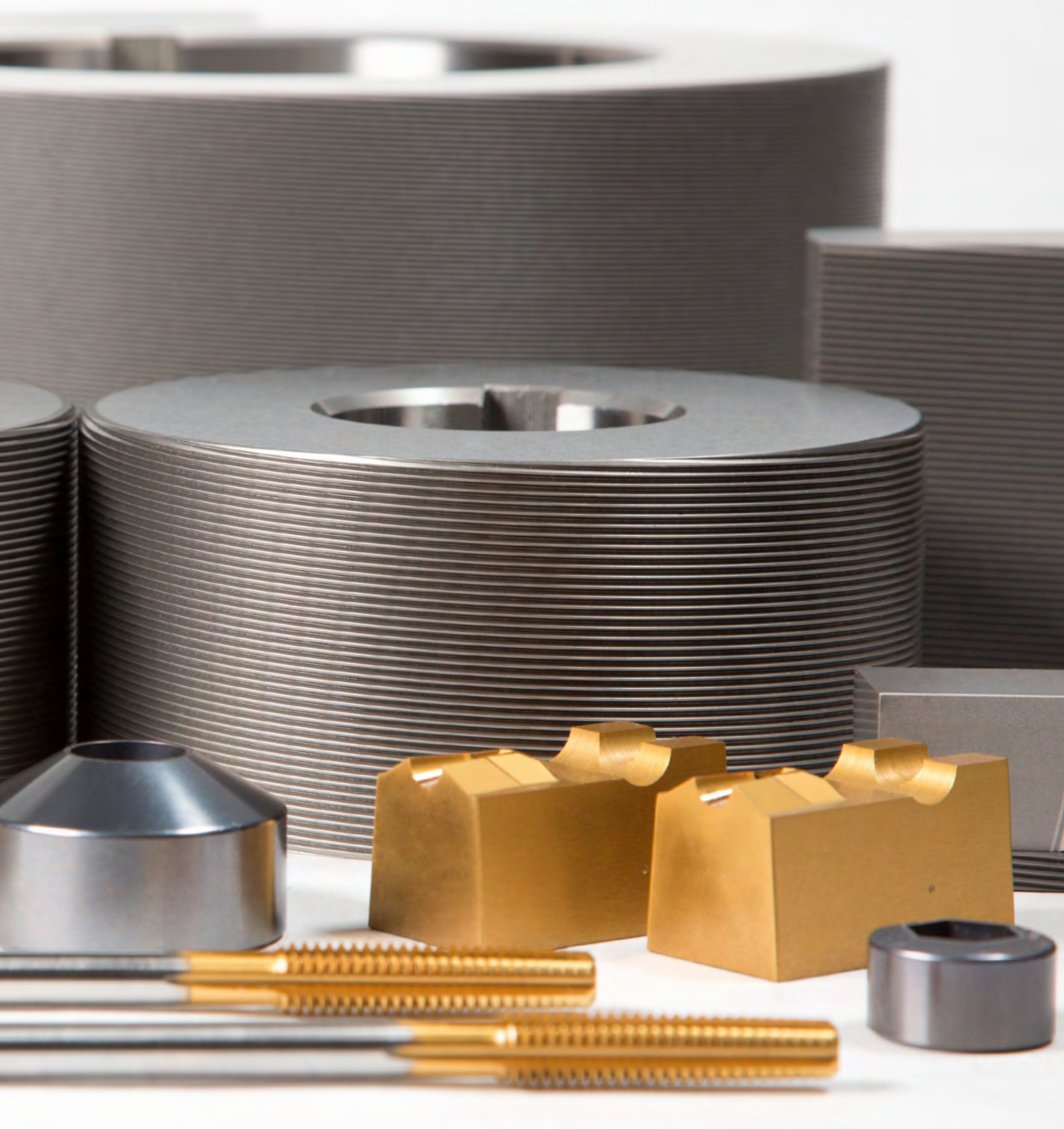


TABLE OF CONTENTS

ABOUT OSG'S COLD FORMING DIVISION	2 - 3
FLAT DIES	
How to Order Flat Dies	5
Machine Specifications	6
Various Profiles for Thread Rolling Dies	7
Standard Blank Sizes	8
UNR, UN, ISO Bolt Maker Dies	9
UNR, UN, ISO Duplex Face Dies	10 - 11
Type A Single Face Dies	12 - 13
Type AB Single Face Dies	14 - 15
Type B & BP Duplex Dies	16
Type F Single Face Dies	17
Special Thread, Various Types and Forms	18
Licensed Products	19
Materials & Treatments	20
Options	21
UN & UNR External Screw Thread Diameters	22 - 23
ISO External Screw Thread Diameters	24
Type A & AB Tapping Screw Thread Diameters	25
Set Up Guide	26 - 28
Troubleshooting Guide	29
PLANETARY DIES	
How to Order Planetary Dies	31
Machine Specifications for Planetary Dies	32 - 33
CYLINDRICAL DIES	
How to Order Cylindrical Dies	35
Machine Specifications for Cylindrical Dies	36 - 37
Special Cylindrical Dies	38
OTHER PRODUCTS AND SERVICES	
Drill Point Dies	40 - 41
Trim Dies	42
Hy-Pro Bent & Nib Taps	43
Rack Dies	44
How to Order Rack Dies	45
Reconditioning Program	46
Exo-Ultra Header Process Monitors	47

ABOUT OSG

OSG-USA, founded in 1968, became the master distributor of forming tools in the U.S. for OSG Corporation, headquartered in Toyohashi, Japan. OSG has grown to be the world leader in the design and manufacture of forming tools and gages. OSG maintains a high standard of excellence for technology, quality and customer service. OSG is dedicated to making great strides in advancing the technology of the forming tool industry. It's world-class Research and Development facility in Japan employs highly trained engineers that pride themselves in continuously improving tools used in the forming industry. The superior quality of OSG's forming tools has helped gain the support and trust of customers worldwide.



OSG's Cold Forming Division was founded in Cleveland, Ohio in 1948 as a supplier of thread rolling dies to the local Cleveland fastener industry. Since that time, OSG's Cold Forming Division has grown into the largest producer of thread rolling dies in the United States, servicing not only domestic customers but also customers in over 20 countries. Its dies are routinely used for manufacturing products for automotive, agricultural, construction industries, as well as, other durable goods industries.

OSG's workforce has many years of experience in designing and manufacturing thread rolling dies, as well as, dies for other forming applications. Its factory is fully equipped with the latest in manufacturing equipment to ensure capability in meeting close tolerances for the most exacting applications. In addition, Sterling has in-house heat-treating capabilities which ensure that metallurgical quality is provided on dies tailored for specific applications.

OSG maintains a large inventory of standard thread rolling dies, as well as, a large stock of semi-finished die blanks. As a result, it can provide fast delivery on special, made to order dies. In addition, Sterling can provide special stocking programs to fit specific customer's needs.

In house engineering of thread rolling dies is accomplished utilizing computer aided design software specifically developed for Sterling's use. Once dies are designed, the designs are verified in simulation software to ensure that die geometries match intended use and manufacturing capability.

OSG is an ISO 9001-2015 certified company. Design and manufacture of all products are in compliance with this standard.



ABOUT OSG








OSG has manufacturing factories in 15 countries and provides high quality, high performance products for customers worldwide. OSG has established a quality assurance system to control the quality and consistency of all products manufactured in its global facilities. OSG focuses on providing high quality products, on time and at a reasonable price.













EUROPE

-  Belgium
-  Denmark
-  U.K.
-  France
-  Germany
-  Italy
-  Netherlands
-  Spain

AMERICA

-  U.S.A.
-  Canada
-  Mexico
-  Brazil
-  Argentina

ASIA

-  Korea
-  Taiwan
-  China
-  Thailand
-  Singapore
-  Indonesia
-  Japan
-  India
-  Malaysia
-  Vietnam
-  Philippines
-  Australia

FLAT DIES



HOW TO ORDER

FLAT DIE INQUIRY SHEET	REFERENCE	PLEASE SPECIFY INFORMATION
SPECIFY ITEM # IF PREVIOUSLY ORDERED. NO OTHER INFORMATION NEEDED		Item #:
Standard Machines and Models	Page 6	
Special Machines (Please Specify)		
Face Length Moving (Long) Die	Page 7	
Face Length Stationary (Short) Die	Page 7	
Holding Angle	Page 7	
Die Style	Page 8	
Die Face Depth	Page 8	
Die Material		
Standard Tool Steel	Page 20	
Premium Tool Steel	Page 20	
High Speed Steel	Page 20	
Rolled Part Description		
Thread Style	Page 18	
Thread Size		
Pitch		
Material		
Hardness		
Print attached	Yes or No	
Features and options		
Starting features	Page 21	
Edge Preparations	Page 21	
Surface Treatments	Page 20	
Lifting Holes	Page 21	
Other Information:		
	Quantity	
	Requested Ship Date	

Please fax your order to 216-267-3356, or call to place your order at 800-533-1300.

FLAT DIES

MACHINE SPECIFICATIONS

WATERBURY FARRELL	HARTFORD SPECIAL	SIMA	DAINICHI	GREENWOOD & BATELY	DESPAIGNE	THICKNESS OF DIE (INCHES)	STATIONARY DIE LENGTH (INCHES)	MOVING DIE LENGTH (INCH)	HOLDING ANGLE (DEG)
000	000-1000	-	-	-	-	15/32	1-1/2	1-25/32	0
00	-	-	-	-	-	11/16	1-3/4	2	5
0	A190, 0-400, 0-500	R6	DR-125A	TR0A	RF0, RFA0	13/16	2-3/4	3-1/4	5
1015	4-600	R6L	DRS-200	-	-	13/16	3-1/2	4	5
10	A312, 10-300, 10-400	R10	DRS-250	TR10A	RF1, RFA1	15/16	4-1/4	5	5
20	20-225	-	DRS-375	TR20A	RF3, RF2-1/2	1-3/16	6	6-3/4	5
30	30-180	-	DR-500	-	RF4, RFA3, RFA4	1-7/16	7-1/2	8-1/2	5
40	40-140	-	DR-625	-	RF5	1-11/16	9	10	5
50	-	-	DR-750	-	RF6	1-15/16	11	12	5
60	60-100	-	-	-	RF7	2-3/16	15	16	5
70	-	-	-	-	-	2-7/16	19	20	5
100	-	-	-	-	-	3	26	27	5

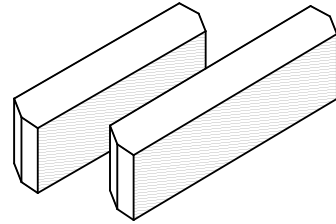
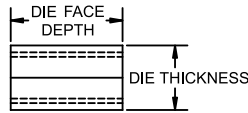
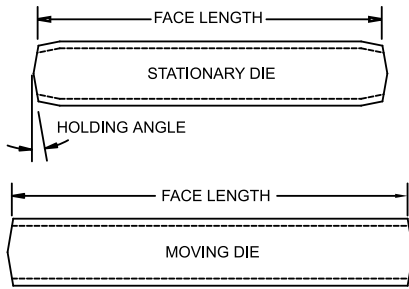
HILGELAND	MENN	SASPI	MALMEDIE	INGRAMATIC	OMEGA	THICKNESS OF DIE (MM)	STATIONARY DIE LENGTH (MM)	MOVING DIE LENGTH (MM)	HOLDING ANGLE (DEG)
-	GW22	-	-	-	-	12	38	45	0
TR0	GW31	-	-	-	-	20	58	66	0
TR1	GW51, GW52	GV1	AG5	RP1	RF8	25	85	95	0
TR2	GW61, GW62	GV2-10	AG6.5	RP2	-	30	115	130	0
TR3	GW81, GW82	GV3	AG8	-	-	35	130	150	0
TR4	GW100	GV4	AG10	RP3	-	40	150	170	0
TR5	GW120	-	AG13	-	-	50	190	210	0
TR6	GW140	-	AG16	-	-	55	230	255	0
-	-	-	AG20	-	-	60	290	315	0

NATIONAL	NEDSCHROEF	NEDSCHROEF	NEDSCHROEF	PELTZER & EHLERS	THICKNESS OF DIE (INCHES)	STATIONARY DIE LENGTH (INCHES)	MOVING DIE LENGTH (INCH)	HOLDING ANGLE (DEG)
3/16 M	-	-	-	-	1/2	3-1/2	4-3/16	5
1/4 M	-	-	-	FWK6	5/8	4-1/4	5	5
5/16 M	HPT2, BV2	-	BS2, BHV2	FWK8	5/8	5	5-3/4	5
3/8 M	HPT3, BV3	NB412, BL2	BS3, BMV3	FWK10	5/8	6	6-3/4	5
1/2 M	HPT4, BV4	NB414, NB415	BS4, BMV4	FWK12	13/16	7-1/2	8-1/2	5
5/8 M	BV5, BVT.4, WP4	NB416, NB418	BVK5, BMV5	FWK16	7/8	9	10	5
3/4 M	HPT6	-	BV5V	FWK20	1	11	12	5
1M	-	-	-	-	1-1/4	15	17	5
1-1/4 M	-	-	-	-	1-5/8	19	21	5

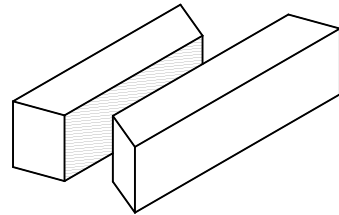
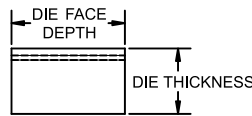
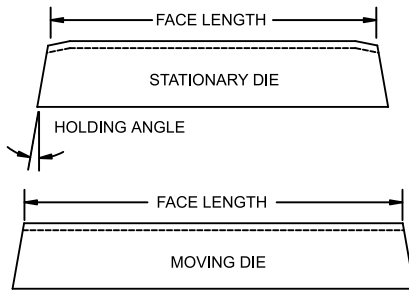
THREAD ROLLING DIES

VARIOUS PROFILES

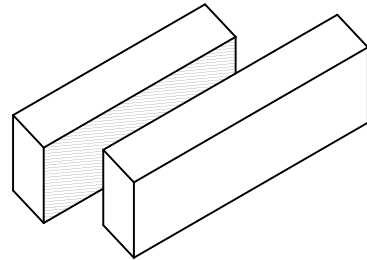
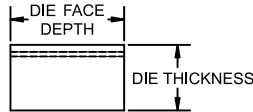
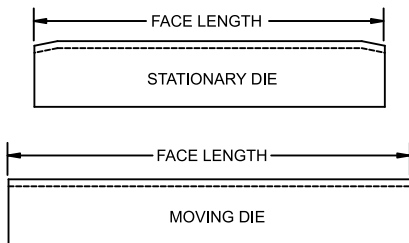
DUPLEX FACE DIES



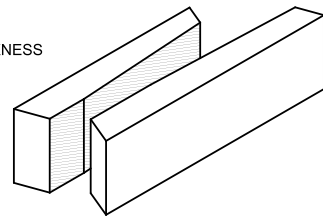
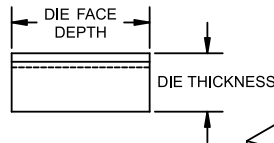
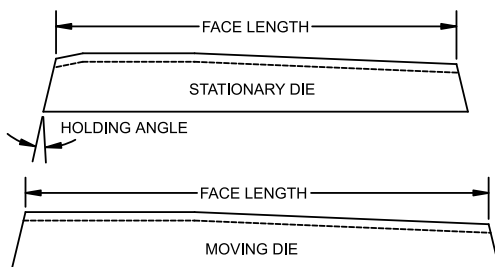
SINGLE FACE DIES



SQUARE END DIES



BOLTMAKER DIES



STANDARD BLANK SIZES

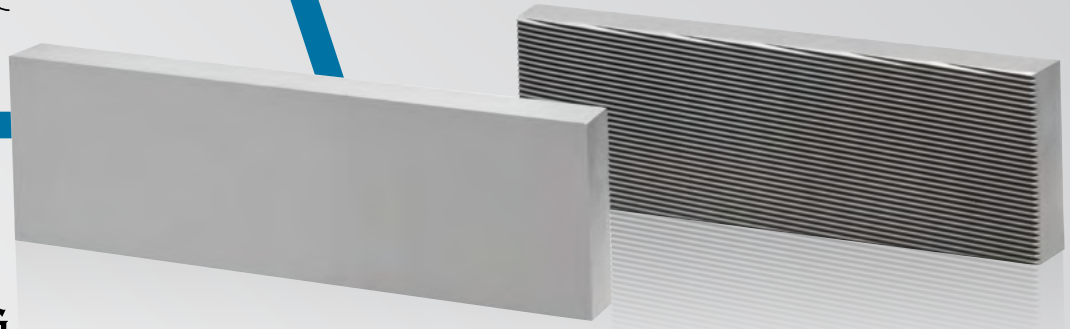
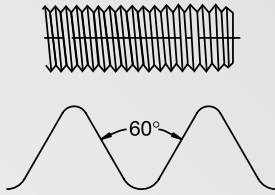
The following table lists the various blanks that are stocked at OSG-Sterling Die. By selecting die sizes from this table, leadtimes can be decreased on special orders.

DIE		TOOL STEEL		PREMIUM TOOL STEEL
SIZE	FACE DEPTH	A2	D2	TS5
00	5/8	Single Face & Reversible		
	1-1/8	Reversible Only		
0	3/4	Single Face & Reversible	Single Face & Reversible	Single Face & Reversible
	1-1/4	Single Face & Reversible	Single Face & Reversible	Single Face & Reversible
	1-5/8	Single Face & Reversible	Reversible Only	Single Face & Reversible
1015	3/4	Single Face & Reversible		Single Face & Reversible
	1-1/4	Single Face & Reversible		Single Face & Reversible
	1-5/8	Single Face & Reversible	Reversible Only	Single Face & Reversible
	2-1/8		Reversible Only	
10	1-1/8	Single Face & Reversible	Single Face & Reversible	Single Face & Reversible
	1-5/8	Single Face & Reversible	Single Face & Reversible	Single Face & Reversible
	2-1/8	Single Face & Reversible	Single Face & Reversible	Single Face & Reversible
	2-5/8	Single Face & Reversible	Reversible Only	
	3-1/8	Reversible Only	Reversible Only	
20	1-1/8	Single Face & Reversible	Single Face & Reversible	Single Face & Reversible
	1-5/8	Single Face & Reversible	Reversible Only	Single Face & Reversible
	2-1/8	Single Face & Reversible	Single Face & Reversible	Single Face & Reversible
	2-5/8	Single Face & Reversible	Reversible Only	
	3-1/8	Single Face & Reversible	Reversible Only	
	4-1/8	Single Face Only		
30	2	Single Face & Reversible	Reversible Only	Single Face & Reversible
	2-3/4	Single Face & Reversible	Reversible Only	Single Face & Reversible
	3-1/4		Reversible Only	Single Face & Reversible
	4-1/8	Reversible Only	Reversible Only	
40	2-5/8		Reversible Only	
	3-1/4		Reversible Only	
	4-5/8		Reversible Only	
50	4-1/8		Reversible Only	
	4-5/8		Reversible Only	
	6		Reversible Only	
60	3-5/8		Reversible Only	
	4-1/8		Reversible Only	
	4-5/8		Reversible Only	
	6-5/8		Reversible Only	

UNR, UN, ISO

BOLT MAKER • SINGLE FACE DIES

MACHINE SCREW



Boltmaker single face dies have a threaded profile that provides a uniform rate of penetration over approximately two-thirds of the die length. The remaining dwell section accurately sizes the thread. These dies can be used for rolling ASME 1A, 2A and 3A, as well as ISO class 6g and 4h right hand, single lead threads.

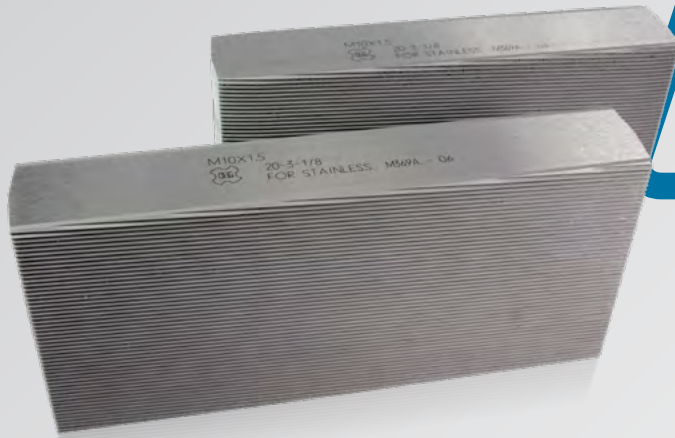
Sterling brand, standard boltmaker dies are made from tool steel and are suited for general purpose applications.

Dies can be supplied on a special basis for other machines and face depths, as well as from other materials. In addition, other thread forms, left hand threads and multiple leads can be supplied.

THREAD PITCH	MACHINE	FACE DEPTH	STERLING
1/4-20 UNRC	5/16 BM	1-1/2"	0008898
5/16-18 UNRC	5/16 BM	1-3/4"	0000455
3/8-16 UNRC	3/8 BM	1-1/2"	0011627
3/8-16 UNRC	3/8 BM	2"	0001327
3/8-24 UNRF	3/8 BM	1-1/2"	0025764
7/16-14 UNRC	1/2 BM	2"	0001328
1/2-13 UNRC	1/2 BM	2"	0003075
1/2-13 UNRC	1/2 BM	2-1/2"	0008337
1/2-20 UNRF	1/2 BM	1-1/2"	0003543
1/2-20 UNRF	1/2 BM	2"	0004043
9/16-18 UNRF	1/2 BM	2"	0004168
5/8-11 UNRC	5/8 BM	3"	0003792
5/8-11 UNRC	3/4 BM	2-1/4"	0008113
M10 X 1.5	3/8 BM	2"	0019502
M12 x 1.75	1/2 BM	2-1/2"	0005679

UNR, UN, ISO

DUPLEX FACE DIES

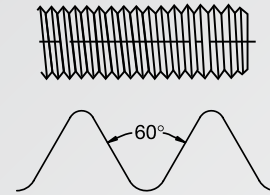


Duplex dies have threads on both faces, offering twice the life of single face dies. Four settings may be used with duplex dies when the depth of the face is in excess of two thread lengths. These dies can be used for rolling ASME class 1A, 2A and 3A, as well as ISO class 6g and 4h, right hand single lead threads. The minimum depth of die face should be at least two pitches greater than the length of thread to be rolled. Select the nearest larger depth of die face whenever possible.

Standard Machine Screw dies are offered in three different brands. The Sterling brand, made from tool steel, is suited for general purpose applications. The Hypro brand, made from premium tool steel, provides higher performance when rolling larger production quantities. The OSG brand, also made from premium tool steel, is treated with a special proprietary surface treatment which provides even higher performance when rolling difficult to form materials.

Dies can be supplied on a special basis for other machines and face depths, as well as, from other materials. In addition, other thread forms, left hand threads and multiple leads can be supplied; either as Duplex, Single Face or Split Face style.

MACHINE SCREW



UNR, UN, ISO • DUPLEX FACE DIES

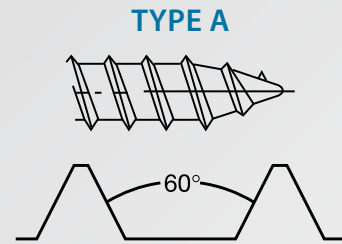
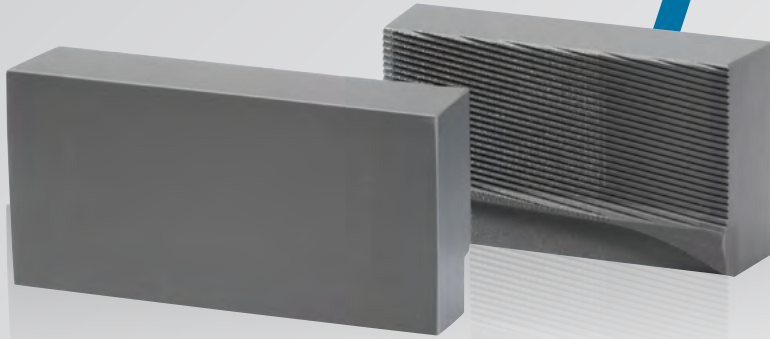
THREAD SIZE	MACHINE	FACE DEPTH	STERLING	HYPRO	OSG
2-56 UNRC	00	5/8"			03001SS
2-56 UNRC	00	1-1/8"			30006SS
2-56 UNRC	0	1-5/8"			
4-40 UNRC	00	5/8"			30004SS
4-40 UNRC	00	1-1/8"			30010SS
4-40 UNRC	0	3/4"	0000723		30015SS
4-40 UNRC	0	1-5/8"	0000141		30035SS
5-40 UNRC	0	1-5/8"		3903600	
6-32 UNRC	00	1-1/8"			30013SS
6-32 UNRC	0	3/4"	0002615	3901600	30016SS
6-32 UNRC	0	1-5/8"	0000181	3903700	30037SS
6-32 UNRC	10	2-1/8"		3906000	
6-40 UNRF	0	1-5/8"		3903800	
8-32 UNRC	0	3/4"	0003359	3901800	30018SS
8-32 UNRC	0	1-1/4"	0002847	3902600	30026SS
8-32 UNRC	0	1-5/8"	0000022	3903900	03039SS
8-32 UNRC	10	2-1/8"	0002798	3906100	
8-36 UNRF	0	1-5/8"		3904000	
10-24 UNRC	0	3/4"			30019SS
10-24 UNRC	0	1-5/8"	0002524	3904100	30041SS
10-24 UNRC	1015	2-1/8"		3926100	
10-24 UNRC	10	2-1/8"	0000182	3906200	30062SS
10-24 UNRC	20	3-1/8"		3909500	
10-32 UNRF	0	3/4"		3902000	30020SS
10-32 UNRF	0	1-1/4"	0001563		30028SS

UNR, UN, ISO • DUPLEX FACE DIES					
THREAD SIZE	MACHINE	FACE DEPTH	STERLING	HYPRO	OSG
10-32 UNRF	0	1-5/8"	0000024	3904200	30042SS
10-32 UNRF	10	1-5/8"		3905300	
10-32 UNRF	10	2-1/8"	0000025	3906300	30063SS
10-32 UNRF	20	3-1/8"	0001622	3909600	
12-24 UNRC	0	1-5/8"		3904300	30043SS
12-24 UNRC	10	2-1/8"	0003252	3906400	
1/4-20 UNRC	0	1-5/8"	0000019	3904400	30044SS
1/4-20 UNRC	1015	2-1/8"			30263SS
1/4-20 UNRC	10	1-1/8"	0000631		
1/4-20 UNRC	10	1-5/8"	0000337	3905600	
1/4-20 UNRC	10	2-1/8"	0000035	3906600	30066SS
1/4-20 UNRC	20	1-5/8"	0001147		
1/4-20 UNRC	20	2-1/8"	0003357		30080SS
1/4-20 UNRC	20	3-1/8"	0000632	3909700	
1/4-28 UNRF	0	1-5/8"	0001028	3904500	
1/4-28 UNRF	10	2-1/8"	0000067	3906700	
1/4-28 UNRF	20	1-5/8"	0001148		
1/4-28 UNRF	20	2-1/8"	0001326	3908100	
5/16-18 UNRC	10	1-1/8"	0006147	3904900	
5/16-18 UNRC	10	1-5/8"		3905800	
5/16-18 UNRC	10	2-1/8"	0000011	3906800	30068SS
5/16-18 UNRC	20	1-5/8"	0000139	3907400	
5/16-18 UNRC	20	2-1/8"	0000104	3908200	30082SS
5/16-18 UNRC	20	3-1/8"	0003402	3909900	
5/16-18 UNRC	30	4-1/8"	0002796	3912700	
5/16-24 UNRF	10	1-5/8"	0001632		
5/16-24 UNRF	10	2-1/8"	0000078	3906900	
5/16-24 UNRF	20	1-5/8"	0004216		
5/16-24 UNRF	20	2-1/8"	0003434	3908300	
5/16-24 UNRF	20	2-5/8"		3909200	
3/8-16 UNRC	10	2-1/8"	0000321	3907000	30070SS
3/8-16 UNRC	20	1-5/8"	0000462		
3/8-16 UNRC	20	2-1/8"	0003040	3908400	30084SS
3/8-16 UNRC	20	2-5/8"		3909300	
3/8-16 UNRC	20	3-1/8"	0002845	3910000	30100SS
3/8-16 UNRC	30	2"		3910600	
3/8-16 UNRC	30	2-3/4"	0002523	3911700	30117SS
3/8-16 UNRC	30	4-1/8"	0002416	3912800	30128SS
3/8-24 UNRF	10	2-1/8"		3907100	
3/8-24 UNRF	20	1-5/8"	0003609	3907700	
3/8-24 UNRF	20	2-1/8"	0000533		
3/8-24 UNRF	20	2-5/8"		3909400	
3/8-24 UNRF	30	2"	0003251		
3/8-24 UNRF	30	2-3/4"	0003229		
7/16-14 UNRC	20	2-1/8"	0000741	3908600	

UNR, UN, ISO • DUPLEX FACE DIES					
THREAD SIZE	MACHINE	FACE DEPTH	STERLING	HYPRO	OSG
7/16-14 UNRC	30	2"		3910800	
7/16-14 UNRC	30	2-3/4"	0002482	3911900	
7/16-20 UNRF	20	2-1/8"	0001172	3908700	30087SS
7/16-20 UNRF	30	2"		3910900	
7/16-20 UNRF	30	2-3/4"	0003966	3912000	
1/2-13 UNRC	20	2-1/8"	0001329	3908800	
1/2-13 UNRC	30	2-3/4"	0000437		
1/2-13 UNRC	30	4-1/8"	0003855	3926600	30266SS
1/2-20 UNRF	20	2-1/8"	0003462	3908900	
1/2-20 UNRF	30	2-3/4"	0000105	3912200	
1/2-20 UNRF	30	4-1/8"	0004153		
5/8-11 UNRC	30	2-3/4"	0000146	3912500	
5/8-11 UNRC	40	3-1/4"	0000037		
5/8-11 UNRC	50	4-5/8"	0002190		
5/8-18 UNRF	30	2-3/4"	0002800		
5/8-18 UNRF	40	2-5/8"	0000107		
3/4-10 UNRC	50	4-1/8"	0000038		
3/4-16 UNRF	40	3-1/4"	0003611		
M3 x 0.5	0	1-5/8"			30504SS
M3.5 x 0.6	0	1-5/8"			30505SS
M4 x 0.7	0	1-5/8"	0002740	3950600	30506SS
M4 x 0.7	10	2-1/8"	0000101		
M5 x 0.8	0	1-5/8"	0000318	3950700	30507SS
M5 x 0.8	10	2-1/8"	0002957	3951600	30516SS
M6 x 1.0	0	1-5/8"	0001965	3950800	30508SS
M6 x 1.0	1015	2-1/8"			30510SS
M6 x 1.0	10	1-5/8"	0000138	3951400	30514SS
M6 x 1.0	10	2-1/8"	0002189	3951700	30517SS
M6 x 1.0	20	2-1/8"	0002608	3952000	30520SS
M8 x 1.25	10	1-5/8"			30515SS
M8 x 1.25	10	2-1/8"	0002609	3951800	30518SS
M8 x 1.25	20	2-1/8"	0000807	3952100	30521SS
M8 x 1.25	20	2-5/8"			30524SS
M8 x 1.25	20	3-1/8"	0000430		
M10 x 1.5	20	2-1/8"	0000103	3952200	30522SS
M10 x 1.5	20	3-1/8"	0000005	3952700	
M10 x 1.5	30	2-3/4"	0002741	3954000	
M12 x 1.5	30	2-3/4"	0000077	3954300	
M12 x 1.75	20	2-1/8"	0000065		30523SS
M12 x 1.75	30	2-3/4"	0000630	3954400	
M14 x 2.0	30	2-3/4"	0001911		
M16 x 2.0	30	2"		3953700	

TYPE A

GIMLET POINT • SINGLE FACE DIES



Type A gimlet dies point the screwblank and roll the threads simultaneously, eliminating the need for prepointing the blanks prior to rolling threads. In addition, these dies may be used for threading pinch pointed or header pointed blanks. Dies are made for Type A tapping screws with single lead, right handed threads made to American Standard B 18.6.4 specifications.

Standard Type A dies are OSG brand and are offered in two styles-- one with standard die face depth and the Exoform-SS which has full die face depth. The Exoform-SS reduces set-up time by eliminating filler blocks. Both styles are made from premium tool steel and are treated with a proprietary surface treatment which provides high performance when rolling difficult to roll materials.

Dies can be supplied on a special basis for other machines and face depths, as well as, from other materials. In addition, other thread forms, left hand threads and multiple leads can be supplied for standard or for inverted (reverse) roll applications.

TYPE A SINGLE FACE

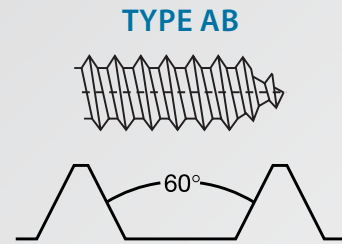
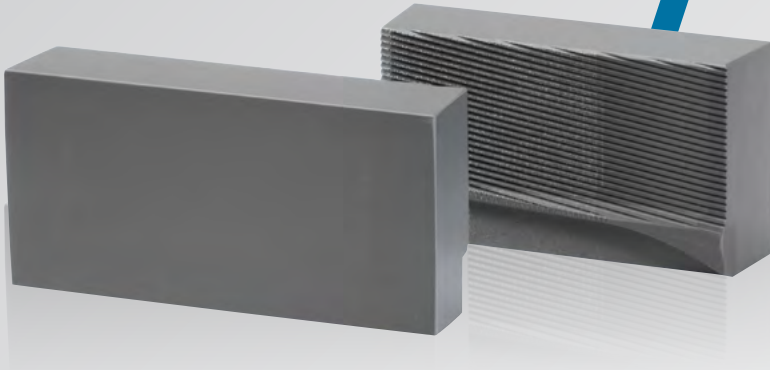
TYPE A SCREW SIZE	SCREW LENGTH	MACHINE	FACE DEPTH	OSG	OSG EXO-FORM-SS
4-24	1/2"	0	3/4"	3500700	
4-24	3/4"	0	1-1/4"	3502000	
6-18	1/4"	0	3/4"	3501000	
6-18	3/8"	0	3/4"	3501100	
6-18	1/2"	0	3/4"	3501200	
6-18	1/2"	0	1-5/8"		3551200
6-18	5/8"	0	3/4"	3501300	
6-18	5/8"	0	1-5/8"		3551300
6-18	3/4"	0	1-1/4"	3502100	
6-18	7/8"	0	1-1/4"	3502200	
6-18	1"	0	1-1/4"	3502300	
6-18	1"	0	1-5/8"		3552300
6-18	1-1/4"	0	1-5/8"	3502600	
7-16	3/8"	0	3/4"	3501400	
7-16	1/2"	0	3/4"	3501500	
7-16	5/8"	0	3/4"	3501600	
7-16	3/4"	0	1-1/4"	3502400	
8-15	3/8"	0	3/4"	3503000	

TYPE A SINGLE FACE

TYPE A SCREW SIZE	SCREW LENGTH	MACHINE	FACE DEPTH	OSG	OSG EXO-FORM-SS
8-15	1/2"	0	3/4"	3503200	
8-15	1/2"	0	1-5/8"		3553200
8-15	5/8"	0	3/4"	3503300	
8-15	3/4"	0	1-1/4"	3503800	
8-15	3/4"	0	1-5/8"		3553800
8-15	1"	0	1-1/4"	3504000	
8-15	1"	10	1-1/8"	3504800	
8-15	1-1/4"	0	1-5/8"	3507600	
10-16	3/8"	0	3/4"	3503400	
10-12	3/8"	0	3/4"	3503500	
10-12	1/2"	0	3/4"	3503600	
10-12	1/2"	10	1-1/8"	3505100	
10-12	5/8"	0	3/4"	3503700	
10-12	3/4"	0	1-1/4"	3504100	
10-12	3/4"	10	1-1/8"	3505300	
10-12	7/8"	0	1-1/4"	3504200	
10-12	1"	0	1-1/4"	3507500	
10-12	1"	10	1-1/8"	3505500	
10-12	1-1/4"	10	1-5/8"	3506900	
10-12	1-3/4"	10	2-1/8"	3509300	
10-12	2"	10	2-1/8"	3507400	
12-11	1/2"	10	1-1/8"	3505600	
12-11	5/8"	10	1-1/8"	3505700	
12-11	3/4"	10	1-1/8"	3505800	
12-11	1"	10	1-1/8"	3506000	
12-11	1-1/4"	10	1-5/8"	3507100	
14-10	3/4"	10	1-1/8"	3506400	
14-10	7/8"	10	1-1/8"	3506500	
14-10	1"	10	1-1/8"	3506600	
14-10	1-1/4"	10	1-5/8"	3507200	
14-10	1-1/2"	10	1-5/8"	3507300	
14-10	2"	10	2-1/8"	3508100	

TYPE AB

GIMLET POINT • SINGLE FACE DIES



Type AB gimlet dies point the screwblank and roll the threads simultaneously, eliminating the need for prepointing the blanks prior to rolling threads. In addition, these dies may be used for threading pinch pointed or header pointed blanks. Dies are made for Type AB tapping screws with single lead, right handed threads made to American Standard B 18.6.4 specifications.

Standard Type AB dies are offered in three different brands. The Sterling brand, made from tool steel, is suited for general purpose applications. The Hypro brand, made from premium tool steel, is designed for the high performance needed when rolling larger quantities. OSG brand is offered in two styles— one with standard die face depth and the Exoform-SS which has full die face depth. The Exoform-SS reduces set-up time by eliminating filler blocks. Both styles are made from premium tool steel and are treated with a proprietary surface treatment which provides high performance when rolling difficult to roll materials.

Dies can be supplied on a special basis for other machines and face depths, as well as, from other materials. In addition, other thread forms, left hand threads and multiple leads can be supplied for standard or for inverted (reverse) roll applications.

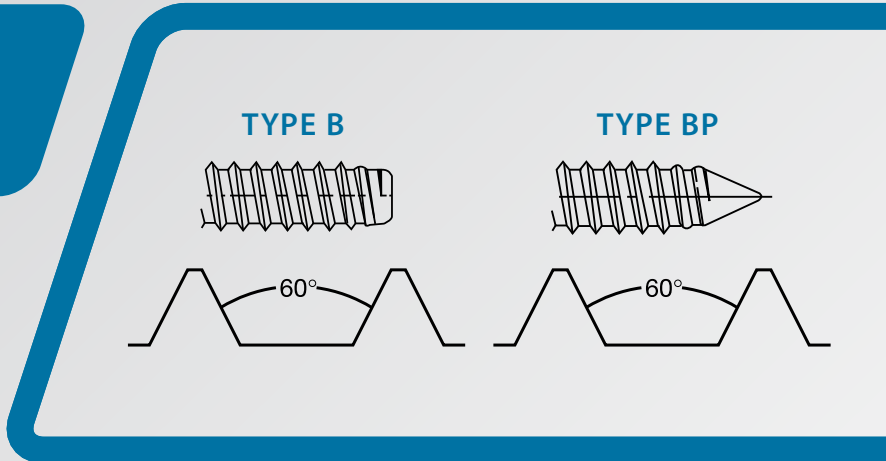
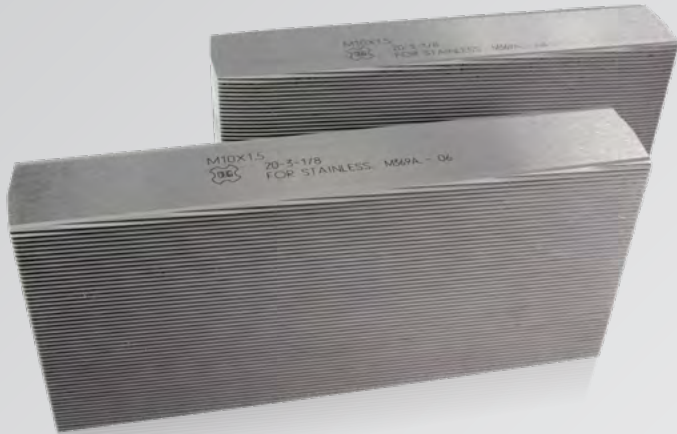


TYPE AB • GIMLET POINT • SINGLE FACE DIES

SCREW SIZE	SCREW LENGTH	MACHINE	FACE DEPTH	STERLING	HYPRO	OSG	EXO-FORM-SS
4-24	1/2"	0	3/4"			3400600	
6-20	1/4"	0	3/4"			3400800	
6-20	3/8"	0	3/4"	0000638	3480900		
6-20	1/2"	0	3/4"	0003451	3481000		
6-20	5/8"	0	3/4"			3401100	
6-20	5/8"	0	1-5/8"				3451100
6-20	3/4"	0	1-1/4"	0006055	3481600		
6-20	1"	0	1-1/4"	0002295		3401800	
8-18	1/4"	0	3/4"		3482200		
8-18	5/16"	0	3/4"		3482300		
8-18	3/8"	0	3/4"	0003401	3482400		
8-18	3/8"	0	1-5/8"				3452400
8-18	7/16"	0	3/4"		3482500		
8-18	1/2"	0	3/4"	0003073	3482600		
8-18	1/2"	0	1-5/8"				3452600
8-18	1/2"	10	1-1/8"			3403700	
8-18	5/8"	0	3/4"		3482700		
8-18	5/8"	0	1-5/8"				3452700
8-18	5/8"	10	1-1/8"			3403800	
8-18	3/4"	0	1-1/4"	0001161	3483100		
8-18	3/4"	0	1-5/8"				3453100
8-18	3/4"	10	1-1/8"			3403900	
8-18	7/8"	0	1-1/4"		3483200		
8-18	1"	0	1-1/4"		3483300		
8-18	1"	0	1-5/8"				3453300
8-18	1"	10	1-1/8"	0010832		3404100	
8-18	1-1/4"	0	1-5/8"		3486600		
8-18	1-1/4"	10	1-5/8"		3485800		
8-18	1-1/2"	10	1-5/8"		3485900		3455900
10-16	3/8"	0	3/4"	0009218	3482800		
10-16	1/2"	0	3/4"	0003074	3482900		
10-16	1/2"	10	1-1/8"		3484300		
10-16	1/2"	0	1-5/8"				3452900
10-16	5/8"	0	3/4"	0001558	3483000		
10-16	3/4"	0	1-1/4"		3483400		
10-16	3/4"	0	1-5/8"				3453400
10-16	3/4"	10	1-1/8"	0001010	3484500		
10-16	1"	10	2-1/8"				3454700
10-16	1-1/4"	10	1-5/8"		3486000		
10-16	1-1/2"	10	1-5/8"		3486100		
12-14	5/8"	10	1-1/8"		3484900		
12-14	3/4"	10	1-1/8"		3485000		
12-14	1"	10	1-1/8"		3485200		
12-14	1-1/2"	10	1-5/8"		3486700		
1/4-14	1/2"	10	1-1/8"		3485300		
1/4-14	5/8"	10	1-1/8"		3485400		
1/4-14	3/4"	10	1-1/8"		3485500		
1/4-14	7/8"	10	1-1/8"		3485600		
1/4-14	1"	10	1-1/8"		3485700		
1/4-14	1-1/4"	10	1-5/8"		3486300		
1/4-14	1-1/2"	10	1-5/8"		3486400		

TYPE B & BP

TAPPING SCREWS • DUPLEX FACE DIES



TYPE B & BP • DUPLEX FACE DIES

TYPE B SCREW SIZE	MACHINE	FACE DEPTH	OSG
4-24	0	3/4"	3114900
4-24	0	1-5/8"	3115500
6-20	0	3/4"	3115000
6-20	0	1-1/4"	3115200
6-20	0	1-5/8"	3115600
8-18	0	3/4"	3115100
8-18	0	1-1/4"	3115300
8-18	0	1-5/8"	3115700
8-18	10	2-1/8"	3116200
10-16	0	1-1/4"	3115400
10-16	0	1-5/8"	3115800
10-16	10	2-1/8"	3116300
12-14	10	2-1/8"	3124700
1/4-14	10	2-1/8"	3124800

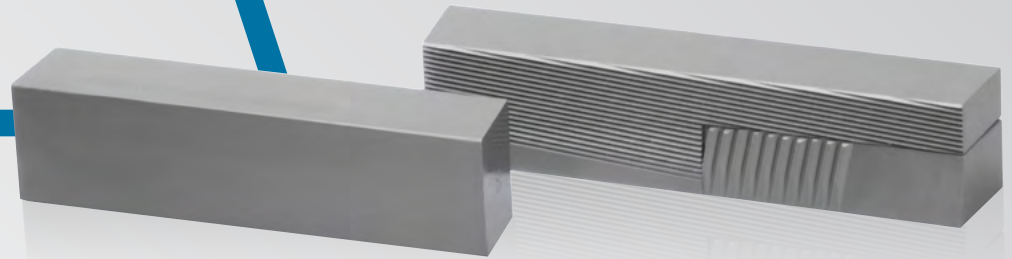
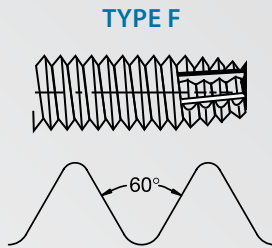
Type B and BP duplex dies have threads on opposite faces and may be used for two settings - one for each face. Thread is single lead, right handed and conforms to American Standard B 18.6.4 specifications. Dies may be used for either flat or round head screws. When using for Type BP, the point must be formed before thread rolling.

Standard B & BP dies are OSG brand. These dies are made of premium tool steel and are treated with a special proprietary surface treatment which provides high performance when rolling difficult to form materials.

Dies can be supplied on a special basis for other machines and face depths, as well as from other materials. In addition, other thread forms, left hand threads and multiple leads can be supplied for standard or for inverted (reverse) roll applications.

TYPE F

SINGLE FACE DIES



Type F single face dies are supplied with full formed taper threads on the point. Threads approximating machine screw threads are single lead, right hand and conform to American Standard B 18.6.4 specifications. The flutes in the tapered end of the thread are rolled simultaneously with the threads.

Standard Type F dies are OSG brand. These dies are made from premium tool steel and are treated with a special proprietary surface treatment which provides high performance when rolling difficult to form materials.

Dies can be supplied on a special basis for other machines and face depths, as well as from other materials. In addition, other thread forms, left hand threads and multiple leads can be supplied for standard or for inverted (reverse) roll applications.

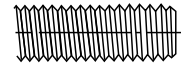
TYPE F • SINGLE FACE DIES

SCREW SIZE	SCREW LENGTH	MACHINE	DIE FACE DEPTH	OSG
4-40	3/8"	0	3/4"	3602400
6-32	1/4"	0	3/4"	3600100
6-32	3/4"	0	1-1/4"	3601700
8-32	3/8"	0	3/4"	3600800
8-32	5/8"	0	3/4"	3601000
10-24	3/8"	0	3/4"	3601100
10-24	1/2"	0	3/4"	3601200
10-24	3/4"	0	1-1/4"	3602700
10-32	3/8"	0	3/4"	3601400
10-32	1/2"	0	3/4"	3601500
10-32	5/8"	0	3/4"	3601600
1/4-20	1/2"	10	1-1/8"	3602100
1/4-20	5/8"	10	1-1/8"	3602200
1/4-20	3/4"	10	1-1/8"	3602300

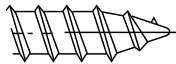
SPECIAL THREADS

VARIOUS TYPES AND FORMS

THREAD STYLES



MACHINE SCREW



TYPE A



TYPE AB



TYPE B



TYPE BP



TYPE F



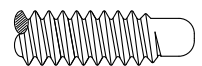
TYPE BF
(COMPLETE THREAD)



TYPE BF
(INCOMPLETE THREAD)



TYPE CA



RADIUS POINT



DRILL POINT



BUTTRESS



TYPE U



ANNUAL RING



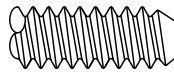
DUAL SPACE



CONSTANT ROOT



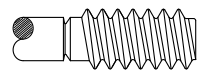
FETTER



ROLL POINT



F-PAINt SCRAPER

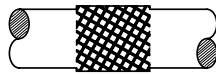


COMBINATION
THREAD & GROOVE

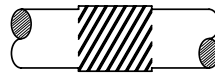
KNURLS



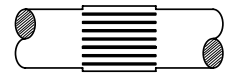
DIAMOND



SQUARE

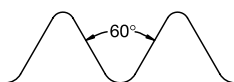


DIAGONAL

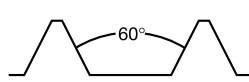


STRAIGHT

THREAD FORMS



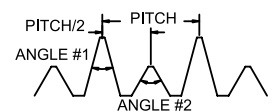
UN, UNR, UNJ, ISO



SPACE



ASYMETRICAL



DUAL SPACE THREAD

LICENSED PRODUCTS

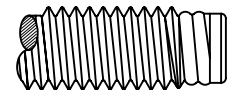


OSG-Sterling Die is licensed to supply thread rolling dies for many proprietary fastener designs. Our engineers work closely with fastener design engineers to develop products which provide fastening solutions for the automotive, electronic and construction industries. After development, OSG-Sterling Die maintains engineering data to support licensees with their production tooling requirements. OSG-Sterling Die is restricted in supplying dies to only licensed fastener manufacturers.



LICENSED MATHREAD® PRODUCTS:

MATpoint®



MATPOINT®

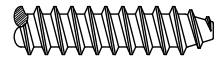


LICENSED TRILOBULAR™ PRODUCTS:

TAPTITE II®
DUO-TAPTITE®
POWERLOK®
KLEERLOK®
TAPTITE®
CA EXTRUDE-TITE®
PLASTITE®
PUSHTITE® II
TAPTITE 2000®
TAPTITE 2000® "SP"™
TAPTITE 2000® "CA"™
FASTITE® 2000™



TAPTITE®



PLASTITE®

LICENSED REMFORM™ PRODUCTS:

REMFORM®
REMFORM® 'F'



REMFORM®



LICENSED EJOT® PRODUCTS:

PT®
Delta PT®



DELTA PT®

MATERIALS & TREATMENTS

MATERIAL SELECTION

A2	Tool Steel steel with good toughness characteristics. Normally supplied on dies used for rolling tapping screw threads in general purpose applications.
D2	Tool Steel with good wear resistant properties. Normally supplied on dies used for rolling machine screw threads in general purpose applications.
TS5	Premium Tool Steel with good wear and toughness characteristics. Normally supplied on dies for rolling longer runs and/or for stainless steel fasteners.
M2	High speed steel offers increased die life when rolling selected stainless steel and heat treated fasteners.
M42	Premium high speed steel for rolling fasteners of high tensile strength or hardness. Recommended for aircraft applications.

RELATIVE MATERIAL CHARACTERISTICS



SURFACE TREATMENTS

TREATMENT	INFO	A2	D2	TS5	M2	M42
Gamma Treatment	A proprietary surface treatment which can be used on both tool steel and high speed steel dies to reduce fatigue failure.	√	√	√	√	√
Nitride Treatment	A surface treatment which can be used on high speed steel and premium tool steel dies to increase wear resistance.			√	√	√
SQT Treatment	A proprietary surface treatment which can be used on high speed steel and premium tool steel dies to increase toughness, as well as, wear resistance.			√	√	√

OPTIONS

SPECIAL STARTS

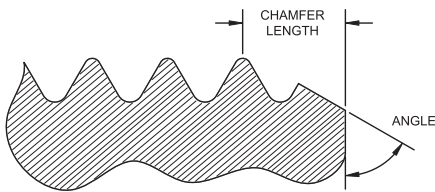
Blank slippage in the thread rolling operation leads to premature die failure and poor quality parts. OSG-Sterling normally supplies dies with a light sandblast; but can offer three special options to minimize slippage:

Sandblast	To minimize slippage, the start end of the dies can be sandblasted with a courser media. Two different starting finishes are offered-- regular and course.
Serrations	Sometimes referred to as cross-nicks. These traverse notches are applied to the start ends of the die.
EDM	A rough EDM finish can be applied to the start end of the dies. This surface is rougher than sand blast and is only applied to the die's thread crests.

When ordering a special starts on your dies please indicate whether you are rolling with the top edge, bottom edge (reverse roll) or both edges.

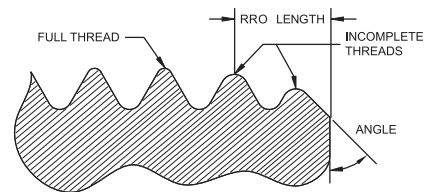
EDGE PREPARATIONS

OSG-Sterling Die normally supplies dies with the top edge that has been beveled and brushed. It can provide a ground chamfer or radius run out on special request.



GROUND CHAMFER

When ordering a special chamfer, please specify the chamfer angle and length.



RADIOUS RUN OUT (RRO)

For RRO please specify the chamfer angle and the RRO length in pitches.

When ordering a special edge preparation on your dies please indicate whether you are rolling with the top edge, bottom edge (reverse roll) or both edges.

LIFT HOLES

OSG-Sterling Die normally supplies lift holes to accept a 1/2"-13 eyebolt. Lift holes are tapped 3/4" deep and are provided on sets which exceed 65 pounds in weight. Lift holes are provided on the top of single face dies. On duplex face dies lift holes are tapped on both the top and bottom. Special lift holes can be supplied upon request.

UN & UNR

EXTERNAL SCREW THREAD DIAMETERS

UN & UNR • EXTERNAL SCREW THREAD DIAMETERS						
NOMINAL SIZE & TPI	CLASS 2A			CLASS 3A		
	PITCH DIA. (INCHES)	MAJOR DIA. (INCHES)	SUGGESTED BLANK DIA.	PITCH DIA. (INCHES)	MAJOR DIA. (INCHES)	SUGGESTED BLANK DIA.
0-80	0.0496	0.0563	0.0505	0.0506	0.0568	0.0513
	0.0514	0.0595		0.0519	0.0600	
1-64	0.0603	0.0686	0.0613	0.0614	0.0692	0.0622
	0.0623	0.0724		0.0629	0.0730	
1-72	0.0615	0.0689	0.0625	0.0626	0.0695	0.0633
	0.0634	0.0724		0.0640	0.0730	
2-56	0.0717	0.0813	0.0728	0.0728	0.0819	0.0736
	0.0738	0.0854		0.0744	0.0860	
2-64	0.0733	0.0816	0.0743	0.0744	0.0822	0.0752
	0.0753	0.0854		0.0759	0.0860	
3-48	0.0825	0.0938	0.0837	0.0838	0.0945	0.0847
	0.0848	0.0983		0.0855	0.0990	
3-56	0.0845	0.0942	0.0856	0.0858	0.0949	0.0866
	0.0867	0.0983		0.0874	0.0990	
4-40	0.0925	0.1061	0.0938	0.0939	0.1069	0.0949
	0.0950	0.1112		0.0958	0.1120	
4-48	0.0954	0.1068	0.0966	0.0967	0.1075	0.0976
	0.0978	0.1113		0.0985	0.1120	
5-40	0.1054	0.1191	0.1067	0.1069	0.1199	0.1079
	0.1080	0.1242		0.1088	0.1250	
5-44	0.1070	0.1195	0.1083	0.1083	0.1202	0.1093
	0.1095	0.1243		0.1102	0.1250	
6-32	0.1141	0.1312	0.1155	0.1156	0.1320	0.1167
	0.1169	0.1372		0.1177	0.1380	
6-40	0.1184	0.1321	0.1197	0.1198	0.1329	0.1208
	0.1210	0.1372		0.1218	0.1380	
8-32	0.1399	0.1571	0.1414	0.1415	0.1580	0.1426
	0.1428	0.1631		0.1437	0.1640	
8-36	0.1424	0.1577	0.1438	0.1439	0.1585	0.145
	0.1452	0.1632		0.1460	0.1640	
10-24	0.1586	0.1818	0.1603	0.1604	0.1828	0.1617
	0.1619	0.1890		0.1629	0.1900	
10-32	0.1658	0.1831	0.1673	0.1674	0.1840	0.1686
	0.1688	0.1891		0.1697	0.1900	
12-24	0.1845	0.2078	0.1862	0.1863	0.2088	0.1876
	0.1879	0.2150		0.1889	0.2160	

UN & UNR • EXTERNAL SCREW THREAD DIAMETERS

NOMINAL SIZE & TPI	CLASS 2A			CLASS 3A		
	PITCH DIA. (INCHES)	MAJOR DIA. (INCHES)	SUGGESTED BLANK DIA.	PITCH DIA. (INCHES)	MAJOR DIA. (INCHES)	SUGGESTED BLANK DIA.
12-28	0.1886	0.2085	0.1902	0.1904	0.2095	0.1916
	0.1918	0.2150		0.1928	0.2160	
1/4-20	0.2127	0.2408	0.2146	0.2147	0.2419	0.2161
	0.2164	0.2489		0.2175	0.2500	
1/4-28	0.2225	0.2425	0.2242	0.2243	0.2435	0.2256
	0.2258	0.2490		0.2268	0.2500	
5/16-18	0.2712	0.3026	0.2732	0.2734	0.3038	0.2749
	0.2752	0.3113		0.2764	0.3125	
5/16-24	0.2806	0.3042	0.2825	0.2827	0.3053	0.2841
	0.2843	0.3114		0.2854	0.3125	
3/8-16	0.3287	0.3643	0.3309	0.3311	0.3656	0.3328
	0.3331	0.3737		0.3344	0.3750	
3/8-24	0.3430	0.3667	0.3449	0.3450	0.3678	0.3465
	0.3468	0.3739		0.3479	0.3750	
7/16-14	0.3850	0.4258	0.3874	0.3876	0.4272	0.3894
	0.3897	0.4361		0.3911	0.4375	
7/16-20	0.3995	0.4281	0.4016	0.4019	0.4294	0.4035
	0.4037	0.4362		0.4050	0.4375	
1/2-13	0.4435	0.4876	0.4460	0.4463	0.4891	0.4482
	0.4485	0.4985		0.4500	0.5000	
1/2-20	0.4619	0.4906	0.4641	0.4643	0.4919	0.4659
	0.4662	0.4987		0.4675	0.5000	
9/16-12	0.5016	0.5495	0.5042	0.5045	0.5511	0.5065
	0.5068	0.5609		0.5084	0.5625	
9/16-18	0.5205	0.5524	0.5228	0.5230	0.5538	0.5247
	0.5250	0.5611		0.5264	0.5625	
5/8-11	0.5589	0.6113	0.5617	0.5619	0.6129	0.5640
	0.5644	0.6234		0.5660	0.6250	
5/8-18	0.5828	0.6149	0.5852	0.5854	0.6163	0.5872
	0.5875	0.6236		0.5889	0.6250	
3/4-10	0.6773	0.7353	0.6803	0.6806	0.7371	0.6828
	0.6832	0.7482		0.6850	0.7500	
3/4-16	0.7029	0.7391	0.7054	0.7056	0.7406	0.7075
	0.7079	0.7485		0.7094	0.7500	
7/8-9	0.7946	0.8592	0.7978	0.7981	0.8611	0.8005
	0.8009	0.8731		0.8028	0.8750	
7/8-14	0.8216	0.8631	0.8243	0.8245	0.8647	0.8266
	0.8270	0.8734		0.8286	0.8750	
1-8	0.9100	0.9830	0.9134	0.9137	0.9850	0.9163
	0.9168	0.9980		0.9188	1.0000	
1-12	0.9382	0.9868	0.9412	0.9415	0.9886	0.9437
	0.9441	0.9982		0.9459	1.0000	

EXTERNAL SCREW THREAD DIAMETERS

METRIC SIZE		INCH				MILLIMETERS			
O.D.	PITCH	MAJOR DIA.	PITCH DIA.	MINOR DIA.	APPROX. BLANK DIA.	MAJOR DIA.	PITCH DIA.	MINOR DIA.	APPROX. BLANK DIA.
M1.6	0.35	0.0622	0.0533	0.0453	0.0521	1.581	1.354	1.151	1.323
		0.0589	0.0508	0.0419		1.496	1.291	1.063	
M2	0.4	0.078	0.0678	0.0587	0.0665	1.981	1.721	1.49	1.689
		0.0743	0.0651	0.0549		1.886	1.654	1.394	
M2.5	0.45	0.0976	0.0861	0.0759	0.0848	2.48	2.188	1.928	2.154
		0.0937	0.0833	0.0719		2.38	2.117	1.825	
M3	0.5	0.1173	0.1045	0.0932	0.1031	2.98	2.655	2.367	2.619
		0.1131	0.1016	0.0888		2.874	2.58	2.256	
M3.5	0.6	0.137	0.1216	0.108	0.12	3.479	3.089	2.742	3.048
		0.132	0.1183	0.1029		3.354	3.004	2.614	
M4	0.7	0.1566	0.1387	0.1228	0.137	3.978	3.523	3.119	3.48
		0.1511	0.1352	0.1173		3.838	3.433	2.979	
M5	0.8	0.1959	0.1754	0.1572	0.1736	4.976	4.456	3.994	4.409
		0.19	0.1717	0.1512		4.826	4.361	3.841	
M6	1	0.2352	0.2096	0.1869	0.2074	5.974	5.324	4.747	5.268
		0.2281	0.2052	0.1796		5.794	5.212	4.563	
M7	1	0.2746	0.249	0.2263	0.2468	6.974	6.324	5.747	6.269
		0.2675	0.2446	0.219		6.794	6.212	5.563	
M8	1.25	0.3139	0.2819	0.2535	0.2796	7.972	7.16	6.439	7.102
		0.3055	0.2772	0.2453		7.76	7.042	6.231	
M8	1	0.3139	0.2883	0.2656	0.2862	7.974	7.324	6.747	7.269
		0.3069	0.2839	0.2584		7.794	7.212	6.563	
M10	1.5	0.3924	0.3541	0.32	0.3515	9.968	8.994	8.127	8.928
		0.3831	0.3489	0.3102		9.732	8.862	7.879	
M10	1.25	0.3926	0.3606	0.3322	0.3583	9.972	9.16	8.439	9.101
		0.3843	0.356	0.3241		9.76	9.042	8.231	
M12	1.75	0.4711	0.4263	0.3866	0.4234	11.966	10.829	9.819	10.754
		0.4607	0.4204	0.3757		11.701	10.679	9.543	
M12	1.25	0.4713	0.4394	0.411	0.4368	11.792	11.16	10.439	11.095
		0.463	0.4342	0.4022		11.76	11.028	10.217	
M14	2	0.5497	0.4985	0.4531	0.4954	13.962	12.663	11.508	12.583
		0.5387	0.4922	0.4411		13.682	12.503	11.204	
M14	1.5	0.5499	0.5116	0.4774	0.5088	13.968	12.994	12.127	12.924
		0.5406	0.5061	0.4677		13.732	12.854	11.879	
M16	2	0.6284	0.5773	0.5318	0.5741	15.962	14.663	13.508	14.582
		0.6174	0.571	0.5198		15.682	14.503	13.204	
M16	1.5	0.6287	0.5903	0.5562	0.5876	15.968	14.994	14.127	14.925
		0.6194	0.5848	0.5464		15.732	14.854	13.879	
M18	2.5	0.707	0.6431	0.5863	0.6397	17.958	16.334	14.891	16.248
		0.6938	0.6364	0.5725		17.623	16.164	14.541	
M20	2.5	0.7857	0.7218	0.665	0.7185	19.958	18.334	16.891	18.25
		0.7726	0.7151	0.6512		19.623	18.164	16.541	
M22	2.5	0.8645	0.8006	0.7437	0.7972	21.958	20.334	18.891	20.249
		0.8513	0.7939	0.73		21.623	20.164	18.541	
M24	3	0.943	0.8663	0.7981	0.8623	23.952	22.003	20.271	21.902
		0.9282	0.8584	0.7817		23.577	21.803	19.855	
M27	3	1.0611	0.9844	0.9162	0.9804	26.952	25.003	23.271	24.902
		1.0463	1.0159	0.8998		26.577	25.803	22.855	

TYPE AB

TAPPING SCREW THREAD DIAMETERS -- ANSI B18.6.4-1998 (R2005)

SCREW SIZE	THREADS PER INCH	MAJOR DIAMETER			MINOR DIAMETER		SUGGESTED BLANK DIAMETER OF THREAD	EQUIVALENT METRIC SIZE (MM)	MINIMUM NOMINAL LENGTHS (90° HEAD) (INCHES)	PRACTICAL SCREW (COUNTER SUNK HEAD) (INCHES)
		BASIC (INCHES)	MAX. (INCHES)	MIN. (INCHES)	MAX. (INCHES)	MIN. (INCHES)				
0	48	0.060	0.060	0.054	0.036	0.033	.047/.048	M1.5-.53	1/8	5/32
1	42	0.073	0.075	0.069	0.049	0.046	.060/.061	M1.9-.60	5/32	3/16
2	32	0.086	0.088	0.082	0.064	0.060	.071/.072	M2.2-.79	3/16	7/32
3	28	0.099	0.101	0.095	0.075	0.071	.082/.083	M2.5-.91	3/16	1/4
4	24	0.112	0.114	0.108	0.086	0.082	.092/.094	M2.8-1.06	7/32	9/32
5	20	0.125	0.130	0.123	0.094	0.090	.103/.105	M3.2-1.27	1/4	5/16
6	20	0.138	0.139	0.132	0.104	0.099	.112/.114	M3.5-1.27	9/32	11/32
7	19	0.151	0.154	0.147	0.115	0.109	.124/.126	M3.8-1.34	5/16	3/8
8	18	0.164	0.166	0.159	0.122	0.116	.133/.135	M4.2-1.41	5/16	3/8
10	16	0.190	0.189	0.182	0.141	0.135	.153/.155	M4.8-1.59	3/8	7/16
12	14	0.216	0.215	0.208	0.164	0.157	.176/.178	M5.5-1.81	7/16	21/32
1/4"	14	0.250	0.246	0.237	0.192	0.185	.207/.209	M6.4-1.81	1/2	19/32
5/16"	12	0.3125	0.315	0.306	0.244	0.236	.263/.265	M8.0-2.12	5/8	3/4
3/8"	12	0.375	0.380	0.371	0.309	0.299	.325/.327	M9.5-2.12	3/4	29/32
7/16"	10	0.4375	0.440	0.429	0.359	0.349	.376/.378	M11.1-2.54	7/8	1-1/32
1/2"	10	0.500	0.504	0.493	0.423	0.413	.440/.442	M12.7-2.54	1	1-5/32

TYPE A

TAPPING SCREW THREAD DIAMETERS -- ANSI B18.6.4-1998 (R2005)

SCREW SIZE	THREADS PER INCH	MAJOR DIAMETER			MINOR DIAMETER		SUGGESTED BLANK DIAMETER OF THREAD	EQUIVALENT METRIC SIZE (MM)	MINIMUM NOMINAL LENGTHS (90° HEAD) (INCHES)	PRACTICAL SCREW (COUNTER SUNK HEAD) (INCHES)
		BASIC (INCHES)	MAX. (INCHES)	MIN. (INCHES)	MAX. (INCHES)	MIN. (INCHES)				
0	40	0.060	0.060	0.057	0.042	0.039	.047/.048	M1.5-.6	1/8	3/16
1	32	0.073	0.075	0.072	0.051	0.048	.058/.059	M1.9-.8	1/8	3/16
2	32	0.086	0.088	0.084	0.061	0.056	.069/.071	M2.2-.8	5/32	3/16
3	28	0.099	0.101	0.097	0.076	0.071	.081/.083	M2.5-.9	3/16	7/32
4	24	0.112	0.114	0.110	0.083	0.078	.091/.093	M2.8-1.1	3/16	1/4
5	20	0.125	0.130	0.126	0.095	0.090	.103/.105	M3.2-1.3	3/16	1/4
6	18	0.138	0.141	0.136	0.102	0.096	.111/.113	M3.5-1.4	1/4	5/16
7	16	0.151	0.158	0.152	0.114	0.108	.123/.125	M3.8-1.6	5/16	3/8
8	15	0.164	0.168	0.162	0.123	0.116	.132/.134	M4.2-1.7	3/8	7/16
10	12	0.190	0.194	0.188	0.133	0.126	.148/.150	M4.8-2.1	3/8	1/2
12	11	0.216	0.221	0.215	0.162	0.155	.174/.176	M5.5-2.3	7/16	9/16
14	10	0.242	0.254	0.248	0.185	0.178	.200/.202	M6.1-2.5	1/2	5/8
16	10	0.268	0.280	0.274	0.197	0.189	.219/.221	M6.8-2.5	9/16	3/4
18	9	0.294	0.306	0.300	0.217	0.209	.240/.242	M7.5-2.8	5/8	13/16
20	9	0.320	0.333	0.327	0.234	0.226	.263/.265	M8.1-2.8	11/16	13/16
24	9	0.372	0.390	0.383	0.291	0.282	.319/.321	M9.4-2.8	3/4	1

SET UP GUIDE

1. GENERAL

The thread-rolling die cost per thread produced is directly related to number of parts obtained in the useful life of the dies. Each time a pair of dies is used, there is a loss encountered in the life of the dies due directly to variations in setup. Die life and die cost per part depend greatly on the care and attention given to setup of the dies and control of blank diameters and material.

Proper setup of the dies is of prime importance. Failure to make a proper setup accelerates the wear to the thread rolling surfaces of the die caused by fatigue. The presence of abrasive material in the coolant also contributes to premature die failure. Careful attention to the control of operating conditions will greatly extend the useful life of thread rolling dies.

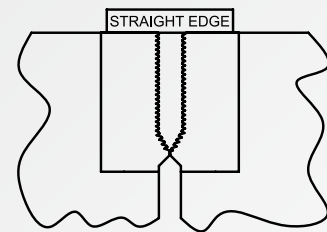
Machines should be maintained in good operating condition. The machine rams should be tight and unnecessary looseness eliminated. Die pockets should be kept in good condition and be free from burrs and chips that could affect the proper seating of the dies. Stationary die blocks must seat firmly on the base and against the adjusting screws.

2. INSERT DIES IN DIE POCKETS

The dies should be placed and clamped in the die pockets with trademarks in the down position. Make sure the die pockets are clean and the dies rest solidly in the die pockets. Dies must not move in the die pockets during the rolling operation. Filler blocks may be used under the dies, when depths of die faces are less than the depths of the die pockets, and must be parallel and free of any burrs.

3. CHECK POSITION OF DIES FOR UNIFORM HEIGHT AND LENGTHWISE PARALLELISM

The dies should be checked with a straight edge, as shown in illustration, to insure dies are setting at the same height. The top edges of the dies must be collinear to the axis of the machine stroke and also parallel with each other. The accurate positioning of the dies eliminates unnecessary adjustment when the dies are later checked for match.



4. POSITION STRAIGHT PORTION OF DIE FACES FOR APPROXIMATE DISTANCE APART

The threaded faces of the dies must also be in a parallel position with each other in order for the dies to finish roll the thread to size during the last few revolutions of the blank. With the dies in parallel position, adjust the spacing of the dies until they are approximately 0.005 to 0.010 apart at the point section at the finish end of the dies. Be sure the rises on the dies do not contact each other.

5. CHECK BLANKS FOR CORRECT DIAMETER, LENGTH AND MATERIAL CONDITIONS

Blank diameters must contain the correct volume of material to form the threads to proper profile and diameter. If the blank contains too much material, the dies become overloaded; and if too little material, the threads will not be completely formed. Blank diameters must therefore be held within prescribed limits of size and tolerances commensurate with the thread specifications for most economical die life. Recommended blank diameters for Types A and AB screws are given on page 19.

Different thread rolling die settings may be required to cover the full diameter limit range produced by new and worn blank header dies. The blank diameter limits for a given setting should not vary more than the permitted blank tolerance, otherwise overloading of the thread rolling dies can result. By keeping different lots of formed blanks segregated into individual blank diameter limit groupings, the thread rolling dies may be readily set up for rolling the individual groupings, with little or no die adjustment for thread size.

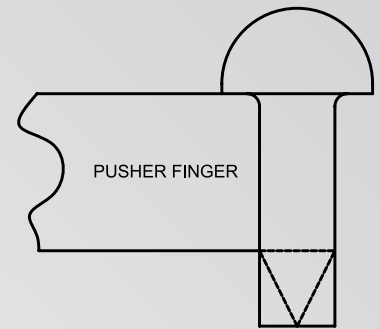
It is important that the lengths of the blanks are not less than the finished length of the thread. Blank lengths equal to or in excess of the thread lengths are preferred. Blanks that are too short will produce threaded points with stringers and in some cases, no

threaded points at all. Blanks should be checked to make sure they are not bent or out of round since these conditions will tend to make the blanks slip in the dies when rolling and result in premature die failure. If the hardness of the blanks is not uniform, variation in threaded points may occur and result in good points, short or no points, and points with stringers. Hard wire may cause the slugs from the self-pointing operation to break off prematurely with resulting threads having short or broken points. Very soft wire tends to stretch during the self-pointing operation and prevents the slug from separating from the blank, thereby rolling points with stringers. Process annealed wire of Rockwell B60-80 hardness will generally give best results.

6. ADJUST PUSHER FINGER

The pusher finger should be made to contract the diameter of the blank between the head and the start of the tapered threaded point as shown in the illustration. The thickness of the finger should be approximately 0.005 less than the minimum minor diameter of the thread. Make sure there is no interference between the pusher finger and cut off section of the die. The end of the finger contacting the blank must be at a right angle to the top of the die to insure proper introduction of the blank into the dies.

In the blank loading position, the finger should be in the fully retracted position to allow the blank to be inserted between the dies. The finger then moves forward and pushes the blank firmly against the roll-on of the stationary die and the face of the moving die. The finger should hold the blank axis vertically until the moving die rotates the blank forward between both dies. In the forward position, the finger should extend approximately 1/2 the blank diameter beyond the end of the stationary die. Blanks that do not start to roll properly can damage the dies and the machine, and will not be rolled uniformly.



7. POSITION BLANKS VERTICALLY FOR SCREW HEAD CLEARANCE

In order for the threads to be rolled close the underside of the head (or shoulder) on a blank, it is important that the blank be located between the dies with the head close to the top edges of the die.

The manner in which the blank is presented to the dies is controlled by the vertical setting of the automatic feeding mechanism and the top surface of the pusher finger in relation to the top edges of the thread rolling dies.

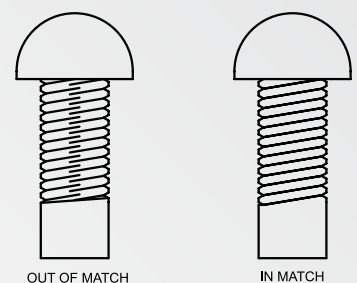
Interference of the head of the blank with the top edges of the dies may result in reduced die life. Sufficient clearance should be made available between the underside of the blank head and the top edges of the dies so the blank may roll freely over the entire lengths of the dies. The amount of clearance depends on rolling conditions. In some instances, the endwise stretching of the blank will raise the head of the blank away from the dies as the blank is rolled. This may permit the head of the blank to rest on the top edges of the dies at the start of the rolling.

Dirty, oily, coated or poorly formed blanks that cause slippage during the rolling will cause the blanks to pull down into the dies and result in interference between the heads of the blanks and the top edges of the dies.

8. MATCH THE DIE THREADS

The matching of the threads on the moving die with the threads on the stationary die is a very important factor in setup. It is essential when rolling single lead threads, that the dies be positioned so the crests of the threads on long die are exactly opposite the roots of the threads on the short die at a point where the pusher finger introduces the blank to the dies and the blank starts to roll. For double lead threads, the crests of the threads on both dies must be opposite each other.

If the threads on the dies are improperly matched, an inferior product thread will be produced and reduced die life will result. To determine whether or not the threads on the dies are in match, place the blank in a position with the pusher finger holding the blank against the threaded surfaces of the dies at the point where the dies start to roll the blanks. Move the ram forward until the dies have picked up the blank and rotated the blank 180 degrees. Then mark the blank relative to one of the dies. Reverse the direction of the ram and remove the blank. Examine, under a magnifying glass, the impressions made on the blank by the dies. The impressions produced by one die must be in exact alignment with the impressions produced by the other die, for the threads of the dies to be in match. Sterling



dies are prematched but because of machine variations, the impressions of the blank may not always be in alignment. To correct this condition, the moving die has to be repositioned laterally by means of the available adjustments provided on the machine. On machines not having lateral adjustment, the endwise position of the moving die may be changed by either shimming, or grinding off the finished end of the moving die.

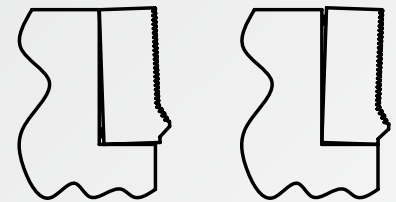
9. ADJUST THE DIES FOR CORRECT THREAD DIAMETER

With the die threads properly matched, manually operate the machine and roll a blank through the full length of the dies. Since most spaced thread minor diameters are determined by the thread form on the dies, it is common practice to only check the thread produced for correct major diameter. When making a setup, it is desirable to position the dies apart so the first power rolled sample thread will not be rolled to a full depth of thread. Diameter size is attained by changing the space between the dies through the use of die adjustments built into the machine for this purpose.

Overloading the dies and stalling of the machine may be avoided by gradually adjusting the setting of the dies for desired thread size. Should the major diameter of the threads be oversized, increase the spacing between the dies. Should the major diameter of the thread be undersized, when rolling a fully formed thread with a minimum blank diameter, it will be necessary to increase the blank diameter by an amount that will bring the major diameter within the minimum major diameter limit.

When the application of a spaced thread also requires the checking of minor diameter limits, the adjusting of the dies for correct thread size must take this into consideration.

If a thread is found to have taper outside of the thread diameter limits, it can only be corrected by placing suitable shims in back of either the top or bottom of the rear face and the lower edge as shown by the illustration.



10. MAKE TRIAL RUN

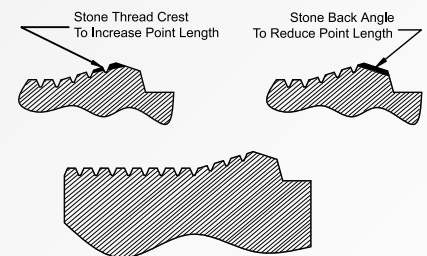
When the die setup is complete, the dies should be clamped firmly in place and the feeding mechanism placed in operation for the trial run. If the threads being rolled are not uniform, make sure the dies are not moving inside the die pockets of the machine. Otherwise check the feeding mechanism, variation of blank size and variation in material hardness. Serrations have been incorporated in the die design to prevent slipping of the blanks between the dies when rolling at machine speeds. Should slipping occur, it may be eliminated by dry blasting the entire threaded faces of both dies with coarse grit. Oily or coated blanks will cause slippage. Slippage will not occur as readily with clean and straight round blanks.

When high-speed machines are running at capacity, minor adjustments in the position of the ram and/or pusher finger may be required.

11. MODIFYING ROLLED THREADED POINTS

Making alterations to the dies may modify the threaded points of the product thread. To reduce length of points threads, stone the serrated surface of the die as shown in upper illustration. To increase the length of the point threads, stone the crests of the upper thread adjacent to the cut off edge as shown in lower illustration.

OBSERVE: STONE MOVING DIE IN MACHINE, (LIGHTLY). IF NECESSARY STONE STATIONARY DIES ALSO



12. COOLANTS

The use of improper coolants can be the cause of blank slippage. Water-soluble coolants are considered most satisfactory.

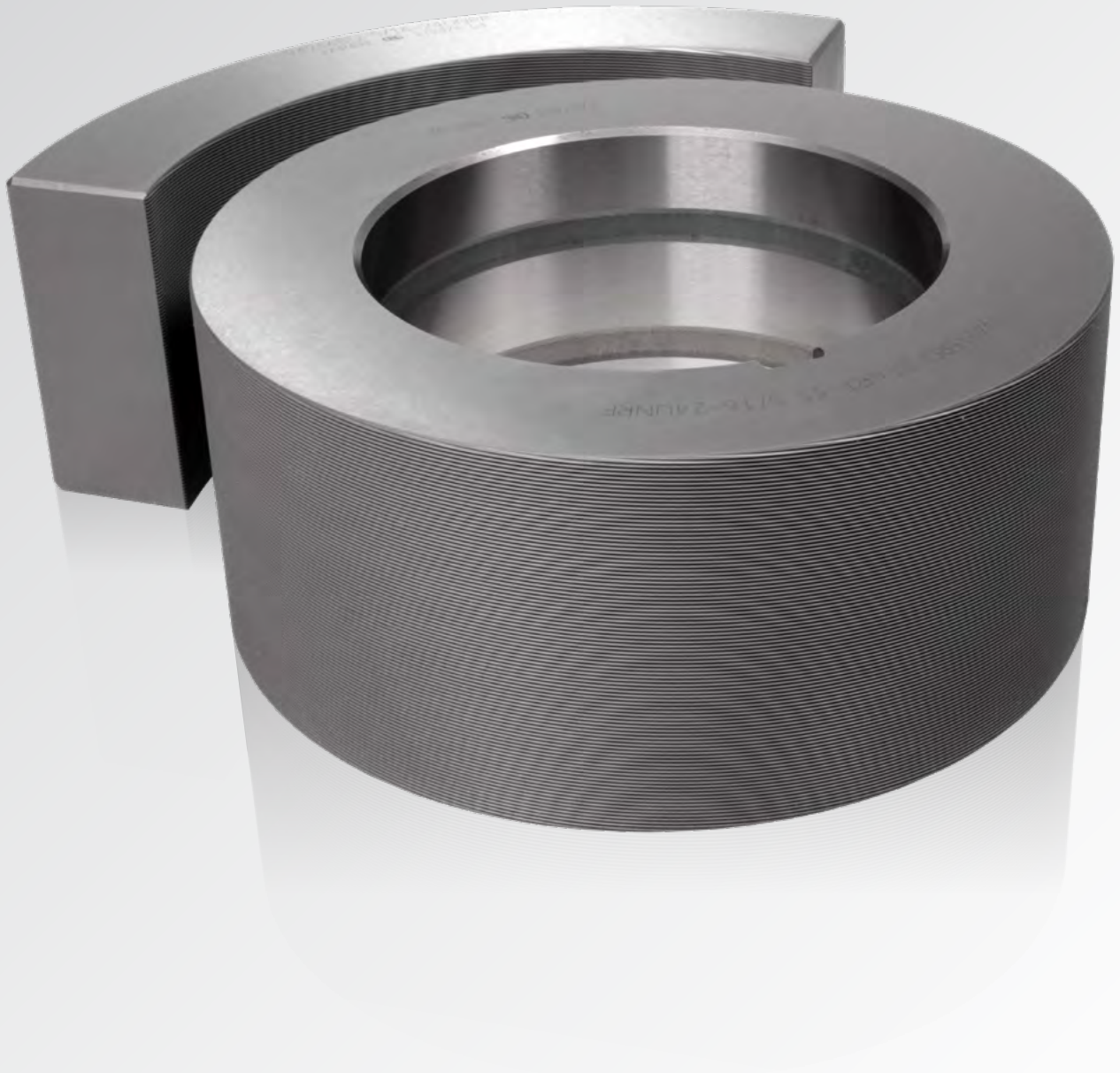
The points of the product threads may be altered by changing the position of the coolant application on the dies. Shorter points may result when the coolant is applied to the starting ends of the dies, and longer points when applied to the finishing ends of the dies.

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSES
Slivers or flakes	1. Dies not in match
	2. Tipped start
	3. Deep cross-nicking on dies
	4. Slipping at start
	5. Improper helix angle on dies
	6. Machine and dies too large and clumsy for the job
	7. Overfilling dies
	8. Material not adaptable to cold working
	9. Seamy stock
Drunken threads	1. Dies not in match
	2. Tipped start
	3. Crooked relief on dies
	4. Slipping at start
	5. Improper helix angle on dies
	6. Inaccurate dies
OFF SIZE THREADS	
1. PD and OD both oversize	Oversize blanks
2. PD oversize, OD right size	Oversize blanks, if finished thread is full, die thread is too shallow
3. PD oversize, OD undersize	Insufficient squeeze on dies. If finished thread is full, die thread is too shallow
4. PD right size, OD oversize	Blank too large. Die thread deeper than necessary
5. PD right size, OD undersize	Blank too small. If finished thread is full, die thread is too shallow
6. PD undersize, OD oversize	Too much squeeze. Die thread deeper than necessary
7. PD undersize, OD right size	Blank too small. Die thread deeper than necessary
8. PD and OD both undersize	Blank too small
Out of round	1. Out-of-round blank
	2. Too much pressure on finish end of dies
	3. Poor thread form on the relief of the die
	4. Dies too short for the job
	5. If thread is full on one side and not on the other, poor match or crooked start
	6. Material not ductile enough for coldworking
TAPER	
1. PD straight, OD tapered and not filled out on small end	Tapered blank
2. PD and OD both tapered some way	Tapered blank, and dies set up with taper to match
3. PD and OD tapered in opposite directions and thread not filled out an end with small OD	Dies not squeezed tight enough on edge with large PD and small OD
Thread with expanded lead	Expanded lead in the dies

PROBLEM	POSSIBLE CAUSES
Thread with contracted lead	1. Contracted lead in dies 2. Hard material (Rockwell 18-C scale and harder) will contract slightly when released from rolling dies. For accurate work, use dies with expanded lead.
Poor thread form	1. Poor thread form in the dies 2. Dies not in match 3. Crooked start 4. Machine and dies too large and clumsy for the job
Line running axially down one side	1. Insufficient relief on the stationary die and too much pressure on the finish end 2. Not gradual enough release of pressure at finish end 3. Dies too short for the job
Thread filled out in center but not at ends, or vice versa	1. Face of die not flat 2. Blank with varying diameter from end to end
End threads not filled Out	This can be minimized by chamfering the ends of the blank
Split thread	1. Seamy stock
	2. Too much pressure on dies, usually at finish end
	3. Dies too short for the job
Poor finish on thread	1. Corresponding poor finish on the dies
	2. Dies that are worn out or broken
	3. Dies not in match
	4. Slipping
	5. Deep cross-nicking on start
	6. Material not ductile enough for coldworking
Crests not filled out. Many users do not consider this a serious objection. By allowing their screws to pass with crests not filled out, overloading of dies is avoided and die life is prolonged	1. Blank too small 2. Die thread too deep
Unfilled gimlet point threads	1. Oversize blanks cause screws to roll out of dies 2. Undersize blank point 3. Short straight section of blanks 4. Blanks improperly positioned
Overfilled gimlet point threads	1. Undersize blanks cause screw to roll down into dies 2. Oversize blank point 3. Long straight section of blanks 4. Blanks improperly positioned

PLANETARY DIES

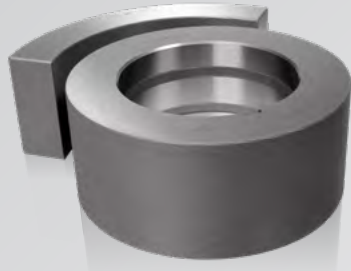


HOW TO ORDER

PLANETARY DIE INQUIRY SHEET	REFERENCE	PLEASE SPECIFY INFORMATION
SPECIFY ITEM # IF PREVIOUSLY ORDERED. NO OTHER INFORMATION NEEDED		Item #:
Machine:		
Name	Pages 32 & 33	
Model	Pages 32 & 33	
Rotary:		
Approximate Outside Diameter		
Inside Diameter		
Key Width & Depth		
Depth of Face		
# of Starts		
# of Lobes		
Direction of Rotation (CW or CCW)		
Segment:		
Outside Diameter or Thickness		
Arc Length in Degrees	90 , 120° or other	
Die Material:		
Premium Tool Steel	Only Available	
Rolled Part Description:		
Thread Style		
Thread Size		
Pitch		
Material		
Hardness		
Print attached	Yes or No	
Features and options		
Radius Run Out (RRO)	1 or 2 edges	
Nitride Surface Treatment		
Lifting Holes	Yes or No	
Other Information:		
	Quantity	
	Requested Ship Date	

Please fax your order to 216-267-3356, or call to place your order at 800-533-1300.

PLANETARY DIES



MACHINE SPECIFICATIONS

OSG Planetary Dies are precision ground on both the rotary die, as well as the segment die. These dies may be turned over for additional settings where thread length permits.

PLANETARY DIES • MACHINE SPECIFICATIONS

MACHINE MAKER NAME	MACHINE MODEL NO.	ROTARY OD (APPROXIMATE)	ROTARY ID	SEGMENT OD	MAX. DIE FACE	WIDTH OF KEYWAY	SEGMENT DIE MULTIPLES	THREAD RANGE METRIC
Sakamura	SSR30	190mm	127mm	240mm	80mm	13mm	3	3-10
	SSR50	240mm	127mm	340mm	80mm	13mm	3	12-16
	SSR50D	240mm	152.4mm	340mm	80mm	15mm	3	12-16
	SSR70	340mm	228.6mm	420mm	75mm	18mm	3	16-22
	SSR100	390mm	228.6mm	520mm	90mm	20mm	3	22-30
	SSR100HD	390mm	266.7mm	520mm	110mm	20mm	3	22-30
	SSR120	450mm	300mm	600mm	110mm	24mm	3	24-38
Sima	RAP4	75mm	40mm	120mm	30mm	10mm	4	1.7-4
	RAP6	190.5mm	127mm	240mm	50mm	13mm	3	3-6
	RAP7	190.5mm	127mm	240mm	50mm	13mm	3	3-6
	RAP10	222.25mm	127mm	305mm	50mm	13mm	3	6-12
	RAP11	222.25mm	127mm	305mm	75mm	13mm	3	6-12
	RAP12	222.25mm	127mm	305mm	75mm	13mm	3	6-12
	RAP16	330.2mm	228.4mm	420mm	75mm	18mm	3	12-22
	RAP20	330.2mm	228.4mm	420mm	75mm	18mm	3	12-22
Waterbury	No 1	175mm	127mm	241.3mm	57.2mm	12.7mm	3	3-6
	No 10	175mm	127mm	241.3mm	57.2mm	12.7mm	4	3-6
	No 20	266mm	152.4mm	342.9mm	79.4mm	15.875mm	3	6-10
Ingramatic	GR1	76.82mm	40mm	120mm	30mm	10mm	4	1.7-4
	GR2	171.85mm	127mm	241.3mm	50mm	12.7mm	4	4-8
	GR3	203.2mm	127mm	280mm	60mm	12.7mm	3	4-12
Omega	RR3	80mm	40mm	120mm	30mm	10mm	4	2-4
	RR4	80mm	40mm	120mm	30mm	10mm	4	2-4
	RR6	171.45mm	127mm	241.3mm	40mm	13mm	3	2.6-6
	RR10	203.2mm	127mm	280mm	-	12.7mm	3	4-12
Sacma	RU2	200mm	127mm	280mm	69.9mm	12.7mm	3	4-12
Sanmei	THI-SRD80	-	127mm	241.3mm	50mm	13mm	4	3-8
Nedschroef	BS2	190.5mm	127mm	241.3mm	-	12.7mm	4	-
	BS3	266.7mm	152.4mm	342.9mm	-	15.86mm	4	-
	BS4	266.7mm	152.4mm	342.9mm	-	15.86mm	3	-

PLANETARY DIES • MACHINE SPECIFICATIONS

MACHINE MAKER NAME	MACHINE MODEL NO.	ROTARY OD (APPROXIMATE)	ROTARY ID	SEGMENT OD	MAX. DIE FACE	WIDTH OF KEYWAY	SEGMENT DIE MULTIPLES	THREAD RANGE METRIC
Pruetton	75-6K	176mm	127mm	241.3mm	80mm	13mm	4	1.3-9.5
	75-7K	176mm	127mm	241.3mm	70mm	13mm	3	1.3-9.5
	150-6	235.65mm	178mm	304.8mm	82mm	12.7mm	4	3-12.7
	150-6K	228.6mm	177.8mm	304.8mm	82mm	12.7mm	4	3-12.7
	150-7	228.6mm	177.8mm	304.8mm	82mm	12.7mm	3	3-12.7
	150-7K	228.6mm	177.8mm	304.8mm	82mm	12.7mm	3	3-12.7
	200	310mm	228.6mm	420mm	82mm	18mm	3	6.3-19
	200-1	304.8mm	266.7mm	Dovetail	82mm	No Key	2	6.3-19
	200-2	304.8mm	228.6mm	Dovetail	82mm	18mm	2	6.3-19
	200-6	304.8mm	228.6mm	406.4mm	82mm	18mm	4	6.3-19
200-6K	304.8mm	228.6mm	420mm	82mm	18mm	4	6.3-19	
Pruetton	200-7	304.8mm	228.6mm	420mm	82mm	18mm	3	6.3-19
	200-7K	304.8mm	228.6mm	420mm	82mm	18mm	3	6.3-19
	300-810	304.8mm	254mm	393.7mm	38mm	No Key	4	7.9-19
	300-820	304.8mm	254mm	393.7mm	38mm	No Key	2	7.9-19
	300-830	304.8mm	254mm	393.7mm	38mm	18mm	1	7.9-19
	300-910	304.8mm	254mm	444.5mm	38mm	No Key	4	7.9-19
	300-920	304.8mm	254mm	444.5mm	38mm	No Key	2	7.9-19
	300-930	304.8mm	254mm	444.5mm	38mm	No Key	1	7.9-19
	400	370mm	266.7mm	495.3mm	115mm	20mm	3	12.7-32
	400-7K	370mm	266.7mm	495.4mm	115mm	No Key	3	12.7-32
Videx	V-0	80mm	40mm	120mm	32mm	10mm	4	1-5
	V-5	190.5mm	127mm	241.3mm	45mm	12.7mm	4	1-5
	V-10	190.5mm	127mm	241.3mm	62mm	12.7mm	4	5-8
	V-15	222.25mm	150mm	300mm	80mm	12mm	3	8-10
	V-20	241.3mm	150mm	300mm	100mm	12mm	3	10-12
	V-25	241.3mm	167.5mm	342.9mm	127mm	15.875mm	3	8-10
	V-30	330.2mm	228.6mm	419.1mm	152mm	18mm	3	10-22
	V-35	330.2mm	228.6mm	419.1mm	152mm	18mm	2	22-26
Ruja	125-10	342.9mm	254mm	520mm	130.175mm	25.4mm	2	-
	371-9	323.85mm	228.6mm	420mm	130.175mm	18mm	3	10-24
	Eagle 1	323.85mm	228.6mm	420mm	130.175mm	18mm	3	10-24
	Eagle 3	323.85mm	228.6mm	420mm	130.175mm	18mm	3	10-24
	631-5	190.5mm	127mm	241.3mm	57.15mm	12.7mm	3	3-7
	Eagle 5	190.5mm	127mm	241.3mm	57.15mm	12.7mm	3	3-7
	2550-6	266.7mm	152.4mm	342.9mm	104.775mm	15.86mm	3	6-12
	Eagle 4	266.7mm	152.4mm	342.9mm	104.775mm	15.86mm	3	6-12
Seny	D-8-TRS	184.15mm	127mm	241.3mm	-	12.7mm	4	-
	D12-TRS	203.2mm	127mm	280mm	-	12.7mm	3	-
Hartford	PTR-1200	190.5mm	127mm	241.3mm	-	No Key	3 or 4	-
Izpe	ETR2	190.5mm	127mm	241.3mm	-	24mm	3	5-8
	S1	177.8mm	127mm	241.3mm	-	24mm	3	5-16
Hilgeland	SW0	85mm	40mm	120mm	40mm	12mm	4	-
	SW2	190.5mm	127mm	241.3mm	40mm	12.7mm	4	-
Menn	RW3	85mm	40mm	120mm	-	10mm	4	-
	RW5	80mm	40mm	120mm	-	12mm	4	-

CYLINDRICAL DIES



HOW TO ORDER

CYLINDRICAL DIE INQUIRY SHEET	REFERENCE	PLEASE SPECIFY INFORMATION
SPECIFY ITEM # IF PREVIOUSLY ORDERED. NO OTHER INFORMATION NEEDED		Item #:
Machine:		
Name	Pages 36 & 37	
Model	Pages 36 & 37	
Die:		
Approximate Outside Diameter		
Inside Diameter		
Key Width & Depth		
Depth of Face		
Infeed	Yes or No	
Thrufeed Annular	Yes or No	
Thrufeed Helical	Yes or No	
Die Material:		
Premium Tool Steel (T55) or	Page 20	
High Speed Steel (M2)	Page 20	
Rolled Part Description:		
Thread Size		
Pitch		
Material		
Hardness		
Print attached	Yes or No	
Features and options:		
Radius Run Out (RRO)	1 or 2 edges	
Nitride Surface Treatment	Page 20	
Other (Please Provide Prints)		
	Quantity	
	Requested Ship Date	

Please fax your order to 216-267-3356, or call to place your order at 800-533-1300.

CYLINDRICAL DIES



MACHINE SPECIFICATIONS

OSG's special materials, heat treatment and surface treatment assure optimal die performance, consistently providing savings on your total tooling costs.

MACHINE SPECIFICATIONS FOR CYLINDRICAL DIES

MACHINE MAKER NAME	MACHINE MODEL NO.	SPINDLE DIA. (I.D. OF DIES)	MAXIMUM DIE O.D.	MAXIMUM DIE WIDTH
Nissei	FA-3S	26.05mm	60mm	30mm
	FA-5S	40mm	100mm	50mm
	FA-10	54mm	140mm	80mm
	FA-16	54mm	160mm	180mm
Tsugami	5D	54mm	150mm	60mm
	T-ROL6 (A5D)	54mm	149mm	60mm
	T-ROL15 (15D)	54mm	180mm	150mm
	T-ROL20 (20D)	70mm	200mm	180mm
	T-ROL25 (25D)	85mm	210mm	300mm
Kinefac	MC-5-F	1-1/2"	4"	2-1/2"
	MC-5-F	2"	4-3/8"	2-1/2" or 3-1/2"
	MC-25-F	2"	6"	4-1/2"
	MC-50	3"	9-1/2"	7"
Landis	LAN-NU-ROL	1-1/2"	2-3/8"	4-1/2"
	LAN-HY-ROL	3"	8-5/8"	6"
	32TFRI	3"	8-5/8"	6"
	HY-DUTY	4-1/2"	12"	10-1/2"
Reed	B112	2-1/8"	6"	3-1/8"
	B210	2-1/8"	5-1/2"	3-1/8"
	B220	2-1/8" or 2-3/4"	7-7/8"	5-15/16"
	B230	3-1/8"	11-3/4"	11-3/4"
	B250	3-5/16" or 3-15/16"	11-3/4"	9-7/8"

Infeed and Thru-Feed Dies priced by quotation.

MACHINE SPECIFICATIONS FOR CYLINDRICAL DIES				
MACHINE MAKER NAME	MACHINE MODEL NO.	SPINDLE DIA. (I.D. OF DIES)	MAXIMUM DIE O.D.	MAXIMUM DIE WIDTH
Izpe	RSC300	54mm	160mm	120mm
	RSC300H	54mm	220mm	200mm
Seny	D25E	40mm	125mm	50.8mm
	D30	40mm	100mm	60.325mm
	D40	40mm	120mm	70mm
	D44H	40mm	120mm	80mm
	D50H	54mm	170mm	101.6mm
	D75B	54mm	170mm	158.75mm
Steinle	NO 1	2-3/4"	5-1/4"	3"
Tesker	175	1-1/4"	4-1/2"	2-1/2"
	200	Various	5"	3-1/4"
	215	1-1/2" or 2"	6"	4-1/2"
	320	Various	8"	5-1/2"
	425	3"	8"	8"
	635	3-1/4"	10"	8"
	840	5-1/2"	16"	15"
Fritz Werner	PEE WEE P5	40mm	120mm	38mm
	PEE WEE P12	54mm	195mm	130mm
	PEE WEE P15	69.85mm	200mm	160mm
	PEE WEE P20	54mm	195mm	160mm
	PEE WEE P24	69.85mm	195mm	150mm
	PEE WEE P25	69.85mm	195mm	150mm
	PEE WEE P50	92mm	258mm	260mm
ORT Italia	3RP8	28mm	80mm	150mm
	3RP15	40mm	175mm	80mm
	18B	54mm	185mm	150mm
	3RP42	69.85mm	215mm	150mm
	RP50	80mm	215mm	150mm
	RP75	80mm	300mm	200mm
Escofier	H12	54mm	170mm	130mm
	H24	69.85mm	220mm	160mm
	H30	69.85mm	220mm	260mm
	H80	120mm	300mm	300mm

Infeed and Thru-Feed Dies priced by quotation.

SPECIALS

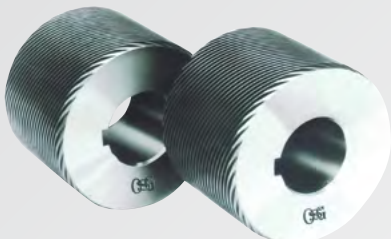
CYLINDRICAL DIES FOR SERRATIONS



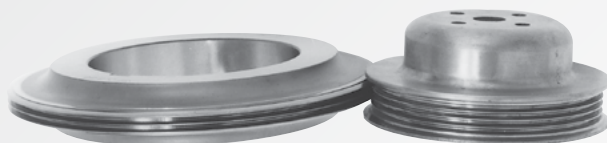
BALL BURNISHING DIES



CYLINDRICAL DIES FOR WORM GEARS



PULLEY DIES



THRU-FEED DIES FOR LONG LENGTH SCREWS

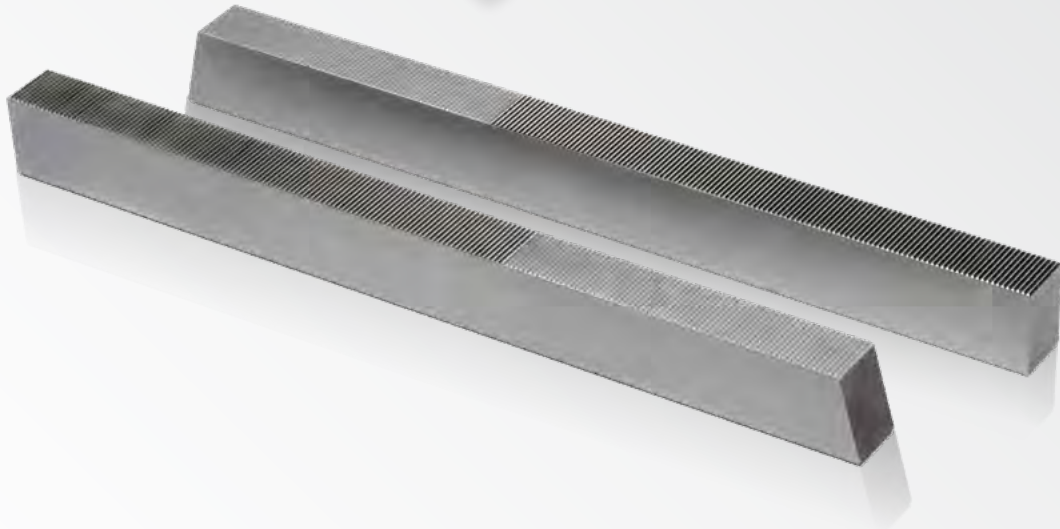
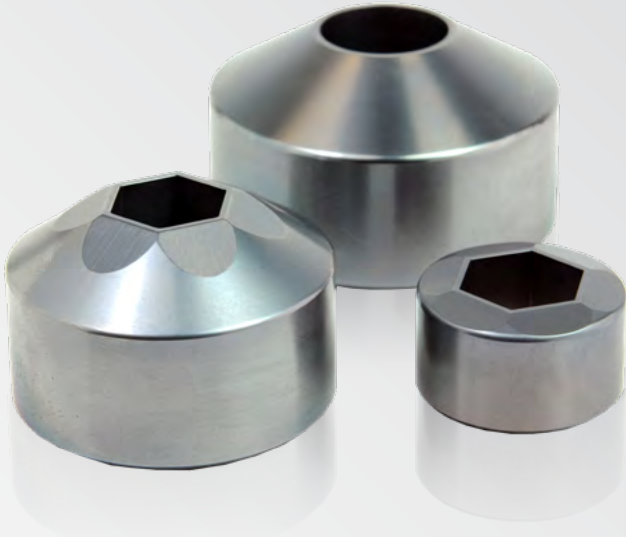


CYLINDRICAL DIES FOR END ROLLING HEADS



PRODUCTS & SERVICES

TRIM DIES
DRILL POINT DIES
NIB TAPS
RACK DIES
RECONDITIONING SERVICE
MONITORS



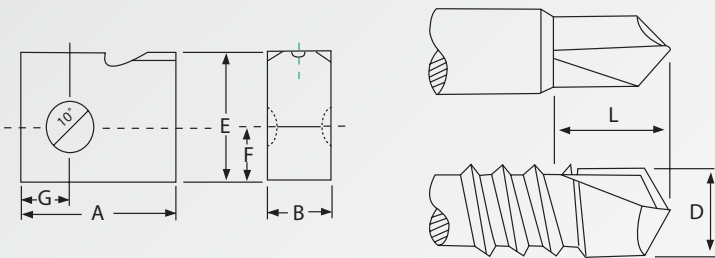
DRILL POINT DIES

NO. 1 DRILL POINT DIES (MM)

DP DIE CODE	DRILL DIA. (D)	FLUTE LENGTH (L)	DRILL LENGTH (C)	MAX. MATERIAL THICKNESS	DP DIE STYLE
L1-22	2.2	2.7	1.7	1.0	Style I & Style II
-23	2.3				
L1-27	2.7	3.4	2.4	1.5	
-28	2.8				
-29	2.9				
-30	3.0				
-31	3.1	4.2	3.2	2.1	
L1-32	3.2				
-33	3.3				
-34	3.4				
-35	3.5				
-36	3.6	5.0	4.0	2.8	
L1-37	3.7				
-38	3.8				
-39	3.9				
-40	4.0				
-41	4.1	6.0	5.0	3.6	
L1-43	4.3				
-45	4.5				
-47	4.7	7.2	6.0	4.5	
L1-49	4.9				
-51	5.1				
-53	5.3				
-55	5.5				
-57	5.7				Style II

NO. 2 DRILL POINT DIES (MM)

DP DIE CODE	DRILL DIA. (D)	FLUTE LENGTH (L)	DRILL LENGTH (C)	MAX. MATERIAL THICKNESS	DP DIE STYLE
L2-22	2.2	3.2	2.2	1.5	Style I & Style II
-23	2.3				
L2-27	2.7	4.0	3.0	2.1	
-28	2.8				
-29	2.9				
-30	3.0				
-31	3.1	4.9	3.8	2.8	
L2-32	3.2				
-33	3.3				
-34	3.4				
-35	3.5				
-36	3.6	5.8	4.8	3.6	
L2-37	3.7				
-38	3.8				
-39	3.9				
-40	4.0	6.9	5.9	4.5	
-41	4.1				
L2-43	4.3				
-45	4.5	8.0	7.0	5.3	
-47	4.7				
L2-49	4.9				
-51	5.1				
-53	5.3				
-55	5.5				Style II
-57	5.7				



L = Flute Length D = Drill Diameter

DRILL POINT DIE STYLES (MM)

DIE STYLE	A	B	E	F	G
Style I	31.75	12.70	25.40	11.40	10.70
Style II	31.75	20.00	32.00	18.00	10.70
Style III	45.00	30.00	32.00	16.00	16.00

DRILL POINT DIES

NO. 3 DRILL POINT DIES (MM)

DP DIE CODE	DRILL DIA. (D)	FLUTE LENGTH (L)	DRILL LENGTH (C)	MAX. MATERIAL THICKNESS	DP DIE STYLE
L3 - 27	2.7	4.7	3.7	2.8	Style I & Style II
- 28	2.8				
- 29	2.9				
- 30	3.0				
- 31	3.1				
L3 - 32	3.2	5.7	4.7	3.6	
- 33	3.3				
- 34	3.4				
- 35	3.5				
- 36	3.6				
L3 - 37	3.7	6.7	5.7	4.5	
- 38	3.8				
- 39	3.9				
- 40	4.0				
- 41	4.1				
L3 - 43	4.3	7.7	6.7	5.3	Style II
- 45	4.5				
- 47	4.7				
L3 - 49	4.9	9.0	8.0	6.3	
- 51	5.1				
- 53	5.3				
- 55	5.5				
- 57	5.7				



Type: Diamond Point
Size: MB
Material: High Speed Steel



Type: Diamond Point
Size: MC
Material: High Speed Steel



Type: Bullet Point
Size: MB
Material: High Speed Steel



Type: Drill Point
Size: MA
Material: High Speed Steel



Type: Drill Point
Size: MB
Material: Carbide



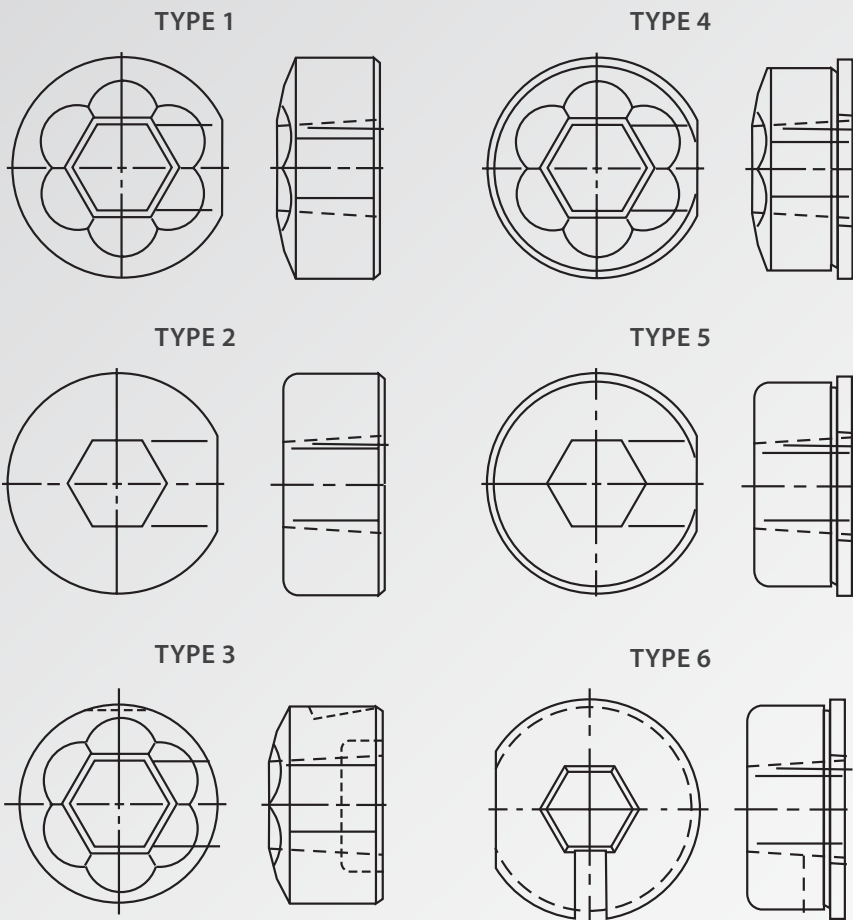
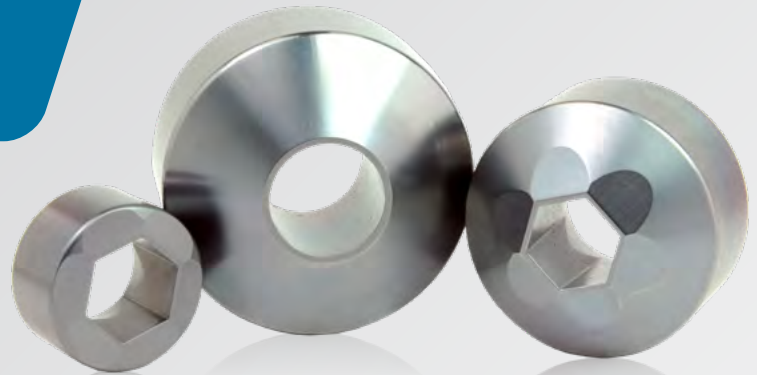
Type: Pinch Point
Size: MB
Material: Carbide

- Innovative Center Point Design
- Consistent Stability
- Faster Drilling Speed
- Longer Tool Life

TRIM DIES

With OSG trim dies, tight tolerances can be met while keeping a fine micro finish. We can also meet your special tolerance requests.

For a Hex Trim Die quotation please supply the outside diameter, height, and the across the flat dimensions. For other styles please provide a print. Dies are normally made from M2 material; but other materials can be used upon request. Both CVD and PVD TiCN coatings are available.



NOMINAL HEX (INCHES)	ACROSS FLATS (0+.002)
3/16	.181
1/4	.244
5/16	.305
3/8	.366
7/16	.428
1/2	.489
9/16	.551
5/8	.612
11/16	.674
3/4	.736
13/16	.798
7/8	.860
15/16	.922
1	.983
1-1/16	1.031
1-1/8	1.100
1-1/4	1.212
1-5/16	1.285
1-7/16	1.394
1-1/2	1.469
1-5/8	1.575
1-7/8	1.812



BENT & NIB TAPS



SNT - SHORT NUT TAP

A tap that can either be used by connecting to a bent shank or short shank. SNT are stocked as standard items at OSG.



NBT - NIB TAP

This tap is used by directly screwing onto a bent shank with a thread hole. Please supply with a sample tap when requesting a quotation.



BNT - BENT SHANK TAP

This tap is used on automatic tapping machines. The tap will be connected with an SNT and bent shank. Please supply a sample tap when requesting a quotation.

SERIES

EX-HS

Metric and inch sizes available. These taps are specially designed for tapping cold forged nuts. Taps are manufactured from high speed steel and coated with TiN treatment.

V-SUS

Metric and inch sizes available. These taps are specially designed for tapping stainless steel and hot forged nuts. Taps are manufactured from high speed steel and are coated with TiCN treatment.

H-LIMITS EX-HS, V-SUS SERIES

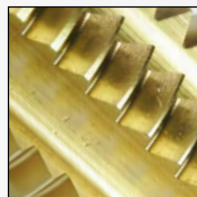
+0.0055	GH11
+0.0050	GH10
+0.0045	GH9
+0.0040	GH8
+0.0035	GH7
+0.0030	GH6
+0.0025	GH5
+0.0020	GH4
+0.0015	GH3
+0.0010	GH2
+0.0005	GH1
+0.0000	



Hypro Brand taps are manufactured on CNC manufacturing technology which ensures high quality and consistency in tapping performance.

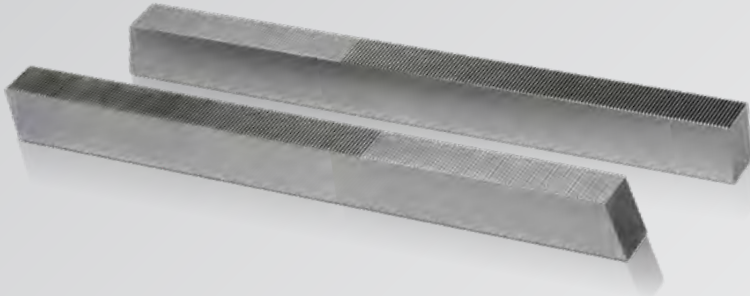


TiN and TiCN coating increases wear resistance and provides anti-welding properties which increase tap life.



Hypro taps are developed specifically for nut production utilizing high vanadium high speed steel.

RACK DIES



OSG rack dies are made from the highest quality steel (EXO-M®). Our proprietary surface treatment increases surface hardness thereby greatly reducing abrasive wear and chipping.

Below are typical results that show why many high volume shaft producers prefer the OSG, EXO-M, rack dies for their production needs. OSG rack dies are available for rolling splines, threads, grooves and gears. Racks can be used individually or in combination to roll multiple features, such as spline and groove.

PART	DIE SIZE		TYPICAL TOOL LIFE	
	LENGTH (IN)	WIDTH (IN)	D2 RACKS	OSG EXO-M
Alternator Shaft	16	1.185	100,000	250,000
Speedometer Worm	36	1.575	30,000	110,000
Drive Shaft	24	2	20,000	64,000
Drive Shaft	24	4.725	10,000	25,000
Turbine Shaft	24	1.35	70,000	120,000
Turbine Shaft	24	1.37	18,000	35,000

HOW TO ORDER

RACK DIE INQUIRY SHEET	REFERENCE	PLEASE SPECIFY INFORMATION
SPECIFY ITEM # IF PREVIOUSLY ORDERED. NO OTHER INFORMATION NEEDED		Item #:
Machine		
Name		
Size		
Rack Die Info		
Length of Die		
Thickness		
Height (face width)		
Tapped hole for clamp		
Die Print Supplied	Yes or No	
Material		
Rolled Part Info		
Module		
# of Teeth		
Pressure Angle (PA)		
Major Diameter		
Root Diameter		
Material		
Hardness		
Part Print Supplied	Yes or No	
Surface Treatment		
Nitride		
Other Information:		
	Quantity	
	Requested Ship Date	

Please fax your order to 216-267-3356, or call to place your order at 800-533-1300.

RECONDITIONING PROGRAM



OSG-Sterling Die offers a die reconditioning service in their facility in Parma, Ohio. Utilization of this program can lead to significant cost savings over the cost of purchasing new tooling. Flat dies, cylindrical dies and rack dies can be reconditioned.

Flat dies are either reground by removing minimal material on the die thickness or reground to customer's specification. Cylindrical dies are reground to the next suitable diameter for the requested pitch. Rack dies are reconditioned by removing the existing form profile and then regrinding a new profile. After grinding, a shim plate is attached to the rack to bring it into new rack dimensions.

Upon receipt of dies for reconditioning OSG-Sterling performs a full inspection to ensure that the dies are suitable for regrinding. If they are not suitable for regrind, they will be returned to the customer.

PROCESS MONITORS

DO YOUR HEADED PARTS LOOK LIKE THIS?



STOP IT WITH OSG'S EXO-ULTRA®!

- Compact, self-contained
- Non-contact liner sensor
- Operates with single or double header machines
- Time delay function
- **Detects:**
 - Short/Overfeed
 - Broken punch/die
 - Cracked punch/die
 - Misfeed
 - Broken Transfer fingers
 - Cracked Inserts
 - Double Heading



NOTES

COLD FORMING DIVISION

Sales Office and Factory

12502 Plaza Drive, Parma, OH 44130

Tel: 800-533-1300

osgtool.com/dies



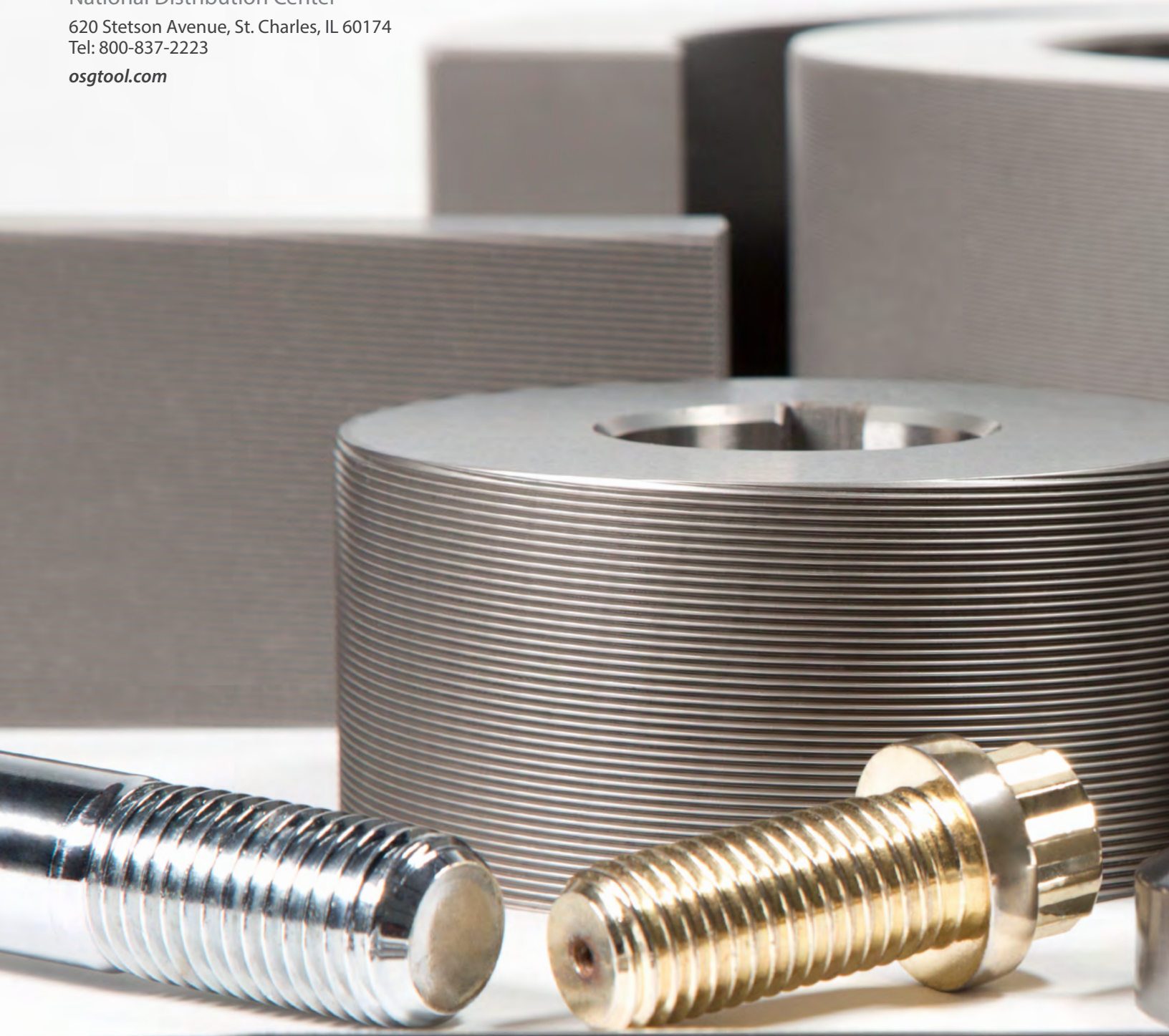
NORTH AMERICAN HQ

National Distribution Center

620 Stetson Avenue, St. Charles, IL 60174

Tel: 800-837-2223

osgtool.com



osgtool.com

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OSG Canada, Ltd. : 905-632-8032 • OSG Royco (Mexico) : +52 (722) 279-36-08 to 11