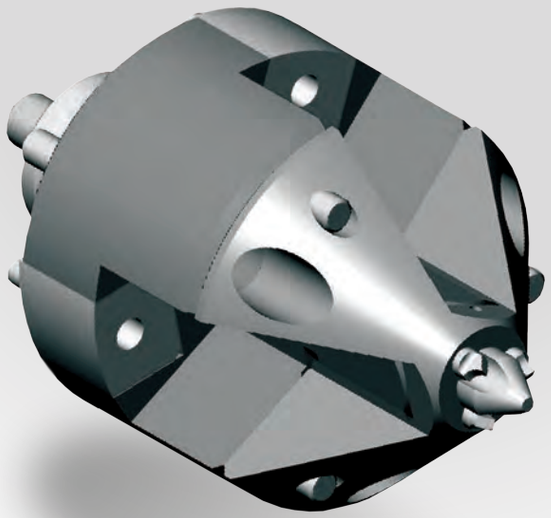
SPEEDGRIP CHUCK CO.

MADISON FACE DRIVER

Complete O.D. Machining in One Operation

Including Hydra-Drive For Extreme Accuracy



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Complete O.D. Machining in one Operation

Located in Elkhart, Indiana, Madison Face Driver is the premier domestic manufacturer of standard and special face driving centers. Face drivers locate a shaft type part between centers and hold the part in place by utilizing several knife edge drive pins.

Because of the tool clearance a face driver provides, it allows the operator to machine the entire outside diameter of the workpiece in one clamping. This guarantees excellent concentricity and reduces both set-up and run time. Used primarily for turning, face drivers can also be used for hobbing, milling and grinding operations.

Madison stocks a complete line of standard face drivers and accessories capable of running parts from .270" O.D. to over 13.57" O.D. including elastomer styles and the completely redesigned hydraulic style. We also have the unique capability among face driver manufacturers of designing special face drivers to your specifications utilizing our "state of the art" three dimensional solid modeling CAD system. We also offer in house repair of all our face drivers.

At Madison

- The Madison hydraulic face driver has the same quality features as before but now feature quick change drive pins and center points and greater tool clearance.

- Carbide drive pins for hard turning applications. These four sided inserts fit our existing Madison drivers adding even more versatility than ever.

- Madison now resharpens drive pins at our Elkhart, Indiana facility. This value added service from Madison will guarantee our customers that the drive pins have been reworked to the original factory specifications. All drive pins will be ground and packaged in sets, reground to the exact driving angles and be inspected to assure that the performance of your Madison Face Driver will not be affected.

Proud to be Part of the Team

Madison Face Driver is proud to be part of the Speedgrip Chuck, Co. workholding group which includes our parent company Speedgrip Chuck and Cameron. Speedgrip manufactures standard internal expanding mandrels, special O.D. and I.D. collet chucks and arbors, diaphragm chucks, rotating air and hydraulic cylinders and many other types of special "Engineered Workholding Solutions". Cameron completes the Speedgrip workholding group, manufacturing high precision workholding products as well as the Sabertooth expanding mandrels.

Madison Face Driver: A Speedgrip Company
2000 Industrial Parkway
Elkhart, IN 46515

574-294-1506
FAX: 574-294-2465
salesweb@speedgrip.com

Table of Contents

Before using the driver, make sure that the drive pins are oriented with respect to driver rotation. Correct pin orientation for both right hand (normal engine lathe spindle rotation) and left hand rotation is shown in Fig. 2 and 3.

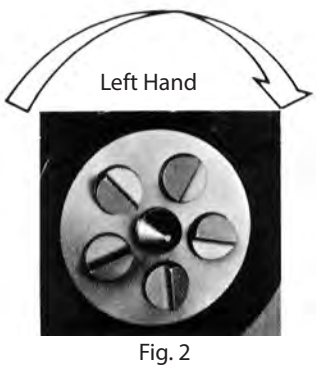


Fig. 2

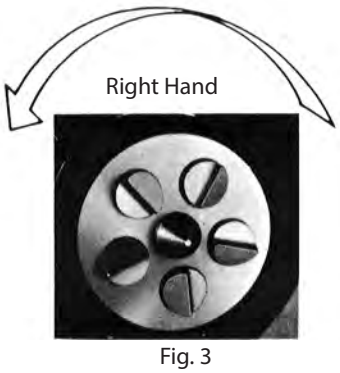
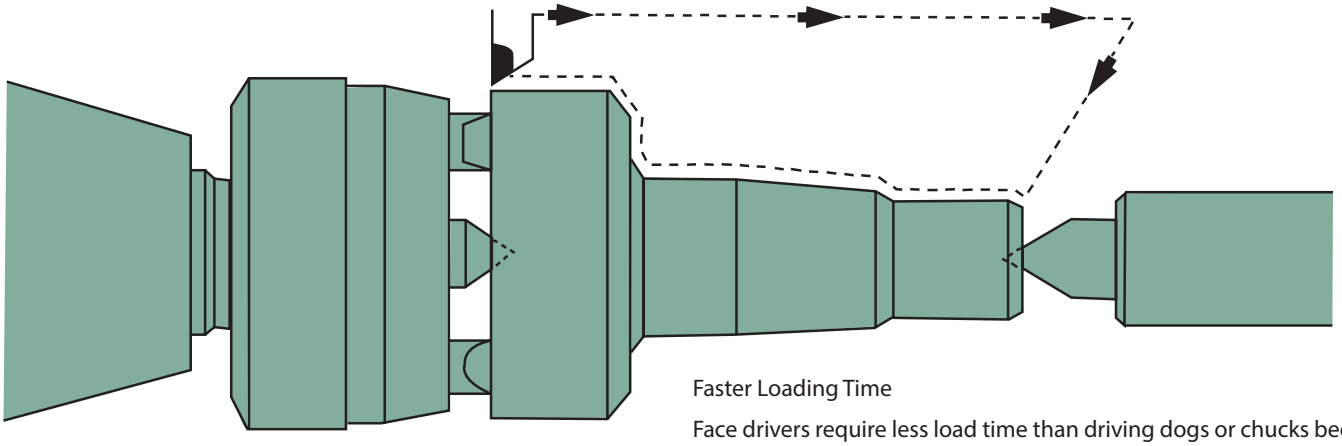


Fig. 3

Madison Face Driver

A SPEEDGRIP COMPANY

Increase Your Production with Madison Face Drivers



Complete OD Machining in One Clamping

Madison Face Drivers permit machining the entire outside diameter of any workpiece in one clamping, because the gripping and turning power of the driver is exerted only on the face of the workpiece. If driving dogs or chucks are used, any workpiece requiring turning over its total length has to be unclamped after initial machining, reversed, and reclamped for completion. This means increased handling, wasteful downtime and possible loss in concentricity.

Heavy Cuts with No Slippage

Properly applied, the Madison Face Driver allows you to take very heavy cuts—often as much as 3/8" on a side—with no slippage of the drive pins on the face of the workpiece, even under the high torques encountered. The chisel-edged drive pins bite into the end face of the part, and with the increasing torque generated as the cutting tool makes its cut, the drive pins bite even deeper into the face, thus providing positive clamping.

Greater Accuracy in Machining Operations

The center point of the face driver establishes the axis of rotation, and the chisel-edged drive pins clamp the piece part face. With only one clamping required, and the part rotating between centers, a single reference point is established for all operations, assuring high accuracy in concentricity.

Accurate End Location

Accuracy of end location is assured with face drivers. The drive pins, which locate the workpiece axially, will indent uniformly within ± .002" from one piece to another under uniform tailstock force.

Faster Loading Time

Face drivers require less load time than driving dogs or chucks because of their self-centering ability and simplicity of operation. Parts can be loaded on the machine and clamped in only a few seconds, thereby reducing machine downtime to a minimum and substantially increasing production.

Load and Unload Automatically

In many cases, face drivers make it possible to load and unload machines automatically, with or without stopping spindle rotation. This results in further savings in production time.

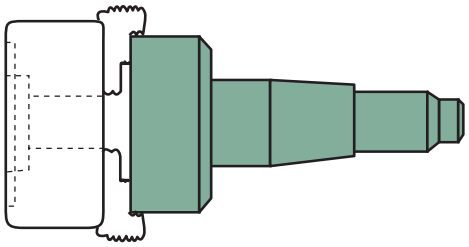
Eliminates Preliminary Machining of End Faces

Except for center hole drilling, irregular or out-of-square faces need not be machined before clamping with face drivers, because the compensating medium built into the tool assures equal penetration of each pin, despite surface variations. Even odd-shaped parts can be securely held by face drivers equipped with center points and drive pins custom-designed for a specific application.

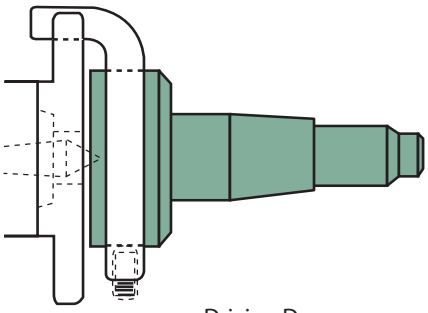
Wide Range Clamping Capability

The Madison Face Driver line consists of seventeen standard models which provide broad workholding versatility for large parts; such as valve bodies…small parts, such as valve stems, drills and taps…castings requiring multiple cuts…forgings, such as automotive pinion gears. In addition, face drivers can be used for rough turning, finishing, hobbing, shaping, spline milling and grinding, among other between-centers operations.

Standard face drivers are available from inventory with gripping diameters from .27" to 9.05" for end clamping of parts ranging in raw stock diameters from .28" to 13.57". Special drivers are designed to suit your individual application requirements.



Jaw Chuck



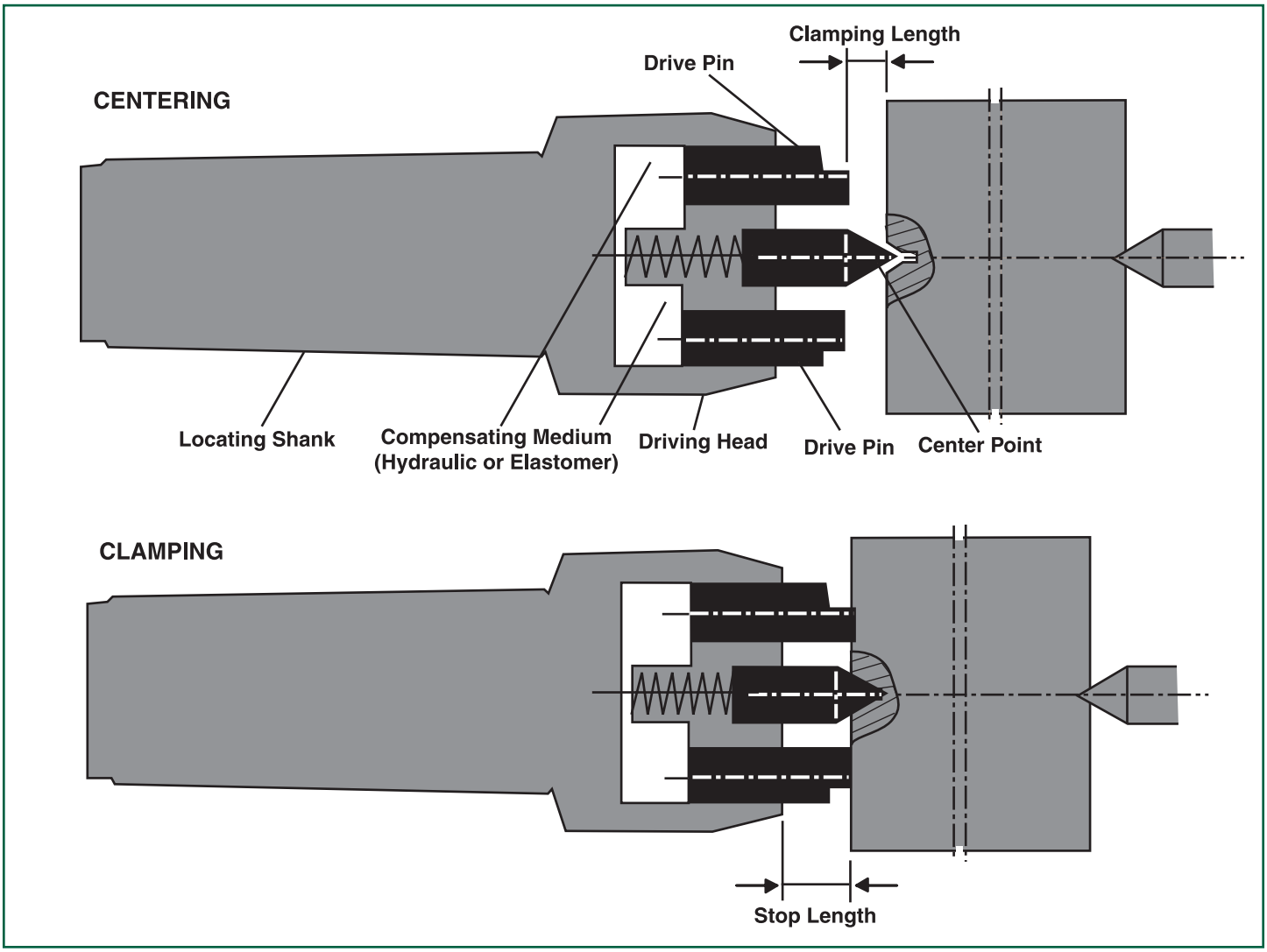
Driving Dog

How the Face Driver Works

Face Drivers are composed of two main assemblies: (1) the locating shank, which fits on the spindle nose having either a taper shank or flange mount; and (2) the driving head. The basic components in the driving head are: the spring-loaded center point, the drive pins, and a compensating medium which permits each drive pin to adjust to irregular face variations.

Face clamping is a simple two-step operation. Centering takes place when the spring-loaded center point engages the workpiece, establishing the precise axis of rotation. As the tailstock is engaged in the workpiece and axial force is applied, the center point retracts against its spring. The drive pins then contact the face and adjust themselves to its surface. Increasing tailstock force causes the drive pins to penetrate the workpiece face, thus completing the clamping operation.

Irregularities or out-of-squareness of the workpiece face present no problem to face drivers, because the drive pins are actuated by an interconnected, self-compensating medium which enables each chisel point to penetrate with equal force, regardless of surface irregularities.



The photographs at right show the indentations made by the drive pins during the initial clamping stage (Fig. 1), and the final clamping stage (Fig. 2). Note the uniformity of each indentation in the workpiece face. This uniformity indicates that every drive pin penetrates the face to the same depth, assuring equalized drive by each pin during machining operations. Pin penetration in the initial clamping stage ranges from .003 to .005, while average penetration in the final clamping phase will range from .010 to .020.

Initial Penetration

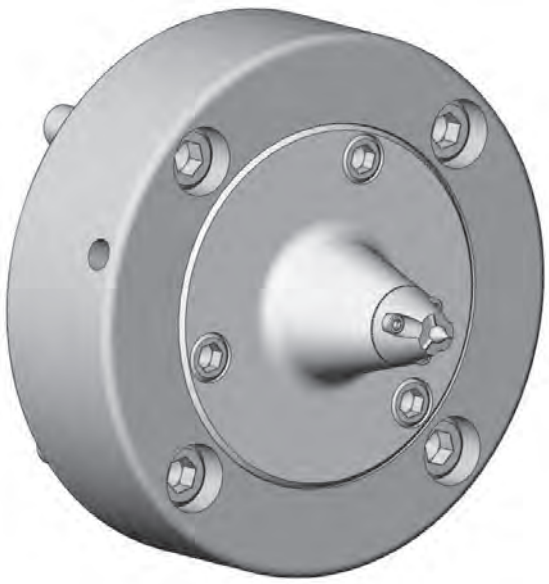
Fig. 1

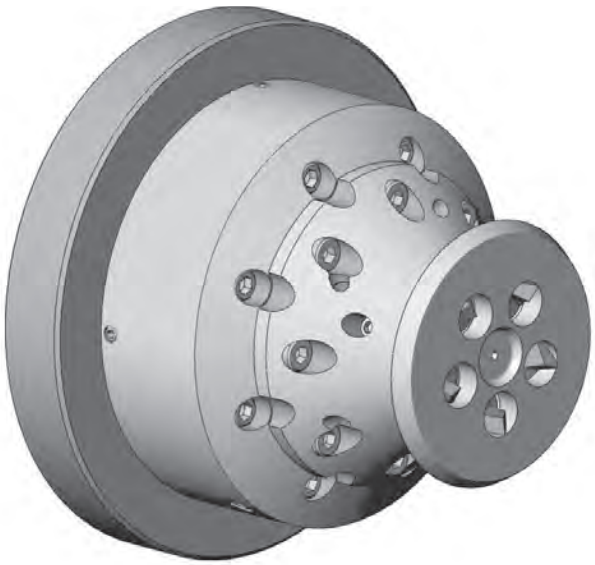
Final Penetration

Fig. 2

Madison Face Driver has the unique position among face driver manufacturers of having a fully staffed design engineering department located in the United States. This gives Madison the capability of responding quickly when designing a special face driver for a specific part configuration or difficult tool clearance problem. Offering special and standard workholding solutions has been our business for over 50 years.

Madison also designs and manufactures solid drive ring face drivers for hobbing applications. Face drivers can provide excellent holding power with unparalleled cutter clearances.





INSTRUCTIONS FOR ORDERING FACE DRIVERS

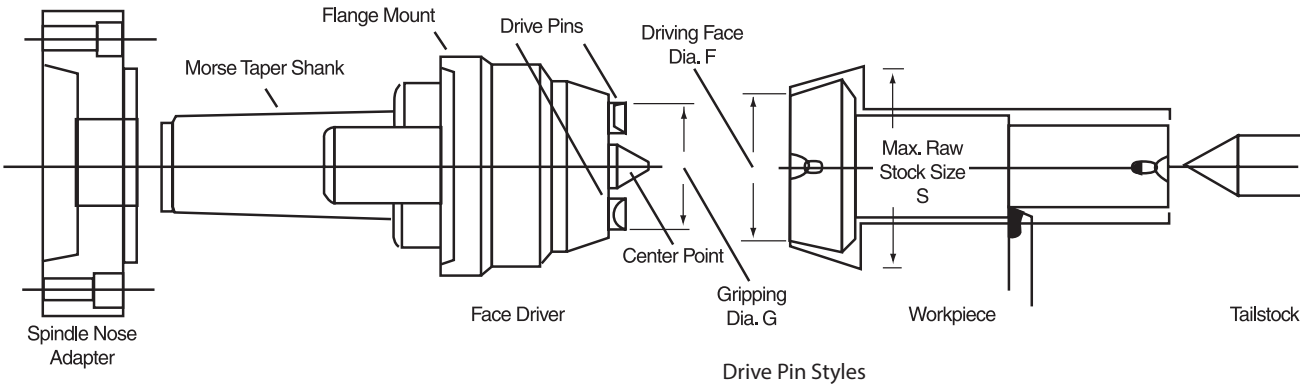
	Tool Series	Drive Shank [1]							Gripping Diameter "G"	Drive Pin Style	Driver Raw Stock Size Range "S"	
		Morse Taper				Straight	Flange	Chuck [2]				
		3	4	5	6						Min	Max.
Elastomer Type	4210 Page 8	113 •	114 •	115 •		200 •		400 •	.27 .35 .43 .55	Offset Half Offset Central Full Width	.28 .36 .44 .56	.54 .70 .85 1.10
	4211 Page 9	113 •	114 •	115 •		200 •		400 •	.39 .47 .55 .67	Offset Half Offset Central Full Width	.40 .48 .56 .68	.78 .94 1.10 1.34
	4212 Page 10	113 •	114 •	115 •		200		400 •	.63 .75 .86 1.02	Offset Half Offset Central Full Width	.64 .76 .87 1.03	1.26 1.50 1.70 2.04
	4213 Page 11	113 •	114 •	115 •	116 •	200 •		400 •	.94 1.14 1.28 1.50	Offset Half Offset Central Full Width	.95 1.15 1.29 1.51	1.88 2.28 2.55 3.00
	4214 Page 12		134 •	135 •	116 •	200 •			1.30 1.57 1.78 2.09	Offset Half Offset Central Full Width	1.31 1.58 1.79 2.10	2.60 3.14 3.57 4.18
Oil Hydraulic Type	4000 Page 18	143 •	144 •	145 •		200 •	300 •	400 •	.28 .36 .44 .55	Offset Half Offset Central Full Width	.29 .37 .45 .56	.58 .74 .90 1.10
	4100 Page 19	143 •	144 •	145 •		200 •	300 •	400 •	.60 .72 83 .98	Offset Half Offset Central Full Width	.61 .73 .84 .99	1.22 1.46 1.68 2.00
	4200 Page 20		144 •	145 •	146 •	200 •	300 •	400 •	.94 1.22 1.42 1.73	Offset Half Offset Central Full Width	.95 1.23 1.43 1.74	1.84 2.40 2.85 3.42
	4300 Page 21			145 •	146 •	200 •	300 •	400 •	1.42 1.73 2.00 2.38	Offset Half Offset Central Full Width	1.43 1.74 2.01 2.39	2.85 3.42 4.01 4.80
	4400 Page 22			145 •	146 •	200 •	300 •	400 •	1.93 2.24 2.51 2.91	Offset Half Offset Central Full Width	1.94 2.25 2.52 2.92	3.82 4.44 5.00 5.78
Dual Range Oil Hydraulic Type	4266 Page 23				146 •		300 •		3.24 3.54 3.86 4.33	Offset Half Offset Central Full Width	3.25 3.55 3.87 4.34	4.85 5.31 5.79 6.49
	4268 Page 24						300 •		4.66 4.96 5.27 5.74	Offset Half Offset Central Full Width	4.67 4.97 5.28 5.75	6.96 7.42 7.90 8.59
	4255 Page 25						300 •		LowRange 1.73 2.05 2.31 2.72 HighRange 3.62 3.94 4.20 4.61	Offset Half Offset Central Full Width Offset Half Offset Central Full Width	1.74 2.06 2.32 2.73 3.63 3.95 4.21 4.62	2.59 3.07 3.46 4.08 5.43 5.91 6.30 6.91
	4258 Page 26						300 •		LowRange 5.59 5.90 6.22 6.69 HighRange 7.96 8.27 8.58 9.05	Offset Half Offset Central Full Width Offset Half Offset Central Full Width	5.60 5.91 6.23 6.70 7.97 8.28 8.59 9.06	8.38 8.38 9.33 10.03 11.94 11.92 12.87 13.57

1. Determine finished workpiece diameter (F) at driving face.
2. Refer to selection matrix below. Select face driver tool series with maximum gripping diameter (G) which is smaller than driving face. Also note maximum raw stock size (S). Full width drive pins are the primary choice; however, offset, half offset and central style pins are available to meet every workpiece requirement.
3. The matrix also indicates shank styles available in the standard program. However, other sizes and styles are available upon request.
4. Refer to pages 8-27. Locate the individual page for the tool series selected. From these pages, the complete ordering code can be obtained.
5. If any further assistance is required, contact your local Madison representative.

[1] Drive shanks marked • are part of the standard program

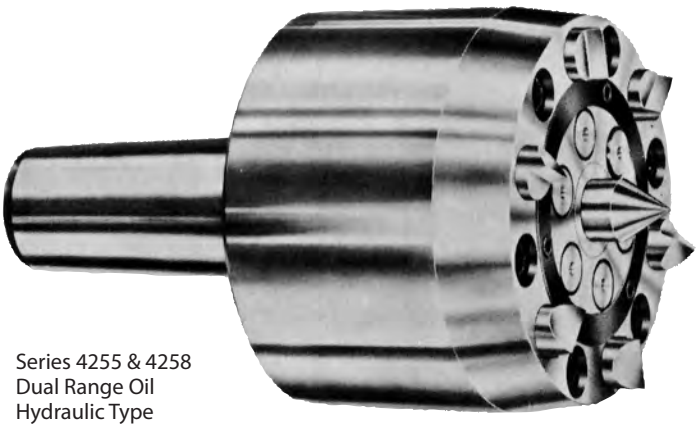
[2] See page 7 for dimensions

FOR EXTREME ACCURACY REQUIREMENTS, VIEW HYDRA-DRIVE PAGES 14 TO 16



Series 4210-4214
Elastomer Type

Series 4100-4268
Oil Hydraulic Type

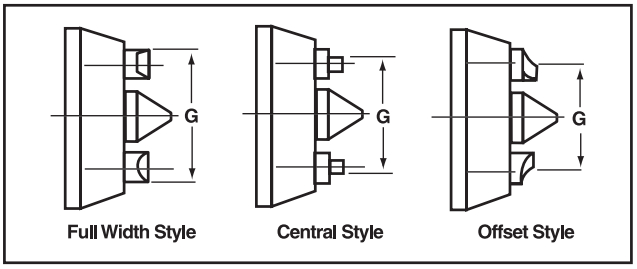


Series 4255 & 4258
Dual Range Oil
Hydraulic Type

Drive Pin Styles

The ability of each face driver series to cover a wide range of work diameters is accomplished through the use of four styles of interchangeable drive pins. Each pin style adapts the basic tool to a specific gripping diameter range.

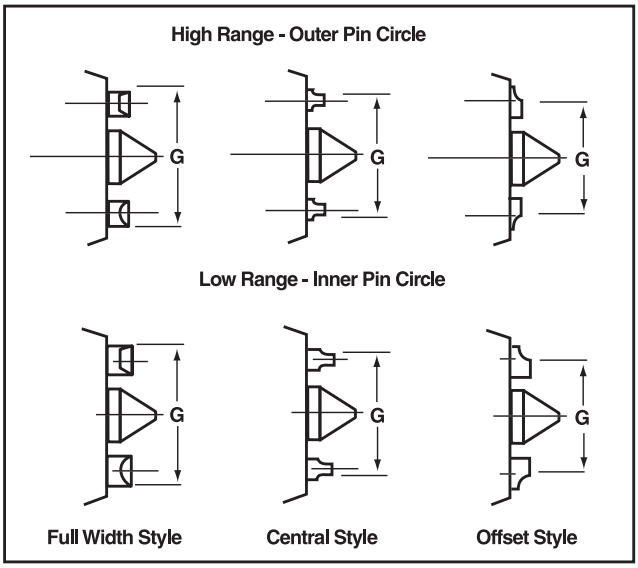
One set of pins is included with each face driver ordered. However, when general purpose work holding is anticipated, it is recommended that the other three drive pin styles be purchased to cover the entire range of potential work diameters.



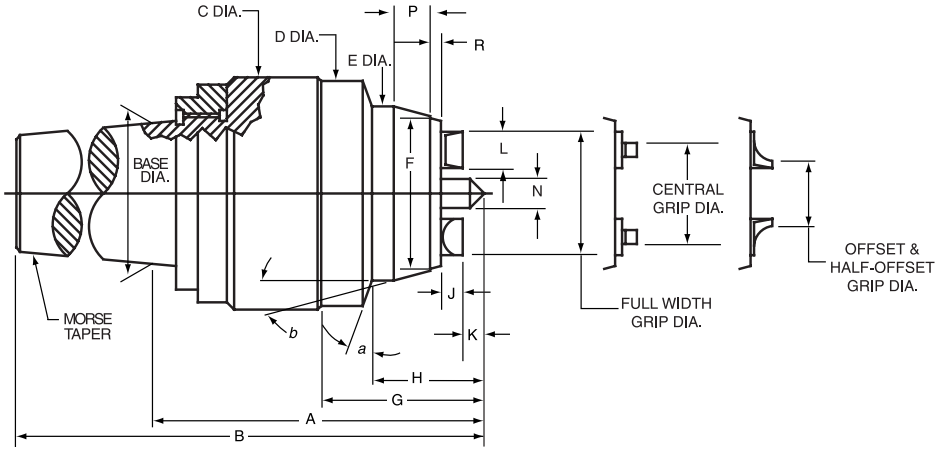
Drive Pin Styles for Dual Range Face Drivers

The dual range type hydraulic face driver is equipped with two sets of drive pin holes. This built-in flexibility of pin locations, combined with the variety of drive pin styles available, enables the tool to cover a wide range of gripping diameters. The full width pin style is furnished as standard equipment with each dual range tool.

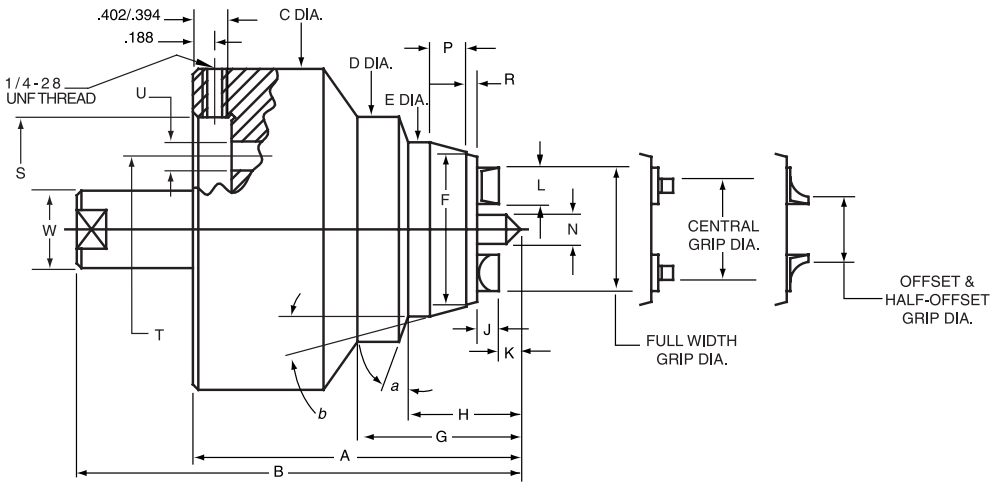
Pin Locations in Dual Range Face Driver



MORSE TAPER DRIVERS



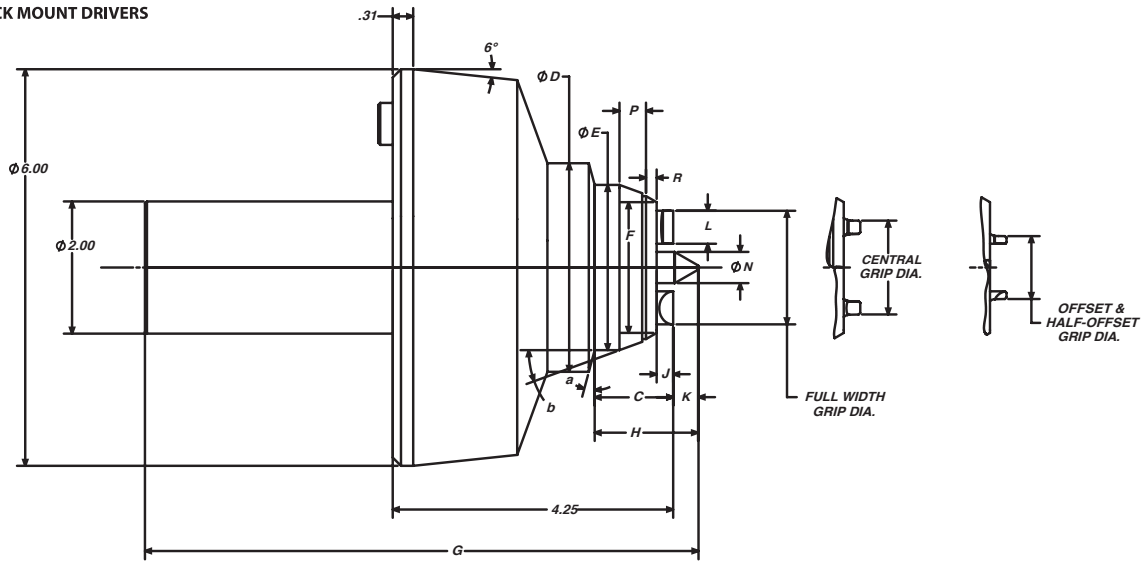
FLANGE MOUNT DRIVERS



NOTE: ON FLANGE MOUNT DRIVERS, DIMENSIONS "W" AND "B" SHOWN ARE FOR STANDARD SPRING HOUSING (REFERENCE SHANK CODE – 300 –)

NOTE: 4258 FACE DRIVER HAS TAPPED HOLES AT DIMENSION "U" INSTEAD OF CLEARANCE HOLES AS SHOWN.

CHUCK MOUNT DRIVERS



TOOL SELECTION DATA

TOOL SERIES	MORSE TAPER		4210	4211	4212	4213	4214	4255	4258	4000	4100	4200	4300	4400	4266	4268	HD-62	HD-63	HD-64
DIMENSIONS FOR MORSE TAPER DRIVERS	A	2	2.57	2.52	2.62	3.50	--	--	--	--	--	--	--	--	--	--	--	--	--
		3	2.81	2.55	2.75	3.43	--	--	--	4.38	4.38	--	--	--	--	--	--	--	--
		4	2.82	2.61	2.80	3.50	4.09	--	--	4.40	4.38	4.47	--	--	--	--	4.47	--	--
		5	2.82	2.61	3.00	3.54	4.19	5.88	--	4.51	4.51	4.56	5.81	5.81	--	--	4.56	5.81	5.81
		6				3.61	4.25	6.00	--	--	--	4.65	5.90	5.90	6.90	--	4.65	5.90	5.90
	B	2	5.47	5.18	5.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		3	5.71	5.50	5.68	6.75	--	--	--	7.32	7.44	--	--	--	--	--	--	--	--
		4	6.38	6.17	6.34	7.04	7.66	--	--	7.96	8.06	8.03	--	--	--	--	8.03	--	--
		5	6.94	6.74	7.16	7.68	8.31	10.01	--	8.64	8.76	8.69	9.94	9.91	--	--	8.69	9.94	9.91
		6	--	--	--	8.84	9.50	11.23	--	--	--	9.91	11.16	11.16	12.16	--	9.91	11.16	11.16
	C	3	--	--	--	--	--	--	--	2.50	2.50	--	--	--	--	--	--	--	--
		4	--	--	--	--	--	--	--	2.50	2.50	3.25	--	4.81	6.22	--	3.25	--	4.81
		5	--	--	--	--	--	5.20	--	2.50	2.50	3.25	4.81	4.81	6.22	--	3.25	4.81	4.81
		6	--	--	--	--	--	5.20	--	--	--	3.25	4.81	4.81	6.22	--	3.25	4.81	4.81
COMMON DIMENSIONS FOR MORSE TAPER OR FLANGE MOUNT DRIVERS OR CHUCK MOUNT DRIVERS	A		15°	15°	30°	15°	45°	--	--	20°	--	--	--	15°	15°	15°	--	--	15°
	B		15°	20°	20°	20°	20°	15°	--	20°	30°	50°	40°	40°	30°	30°	50°	40°	40°
	D		1.65	1.65	2.06	2.75	3.62	5.20	9.84	2.50	2.50	3.16	4.75	4.72	6.14	8.19	3.16	4.75	4.72
	E		1.18	1.18	1.59	2.13	3.22	5.20	9.68	1.18	--	--	--	3.56	5.27	6.63	--	--	3.56
	F		0.77	0.94	1.18	1.73	2.36	4.89	9.68	0.78	0.95	1.22	1.63	2.71	4.63	6.05	1.22	1.63	2.71
	G		--	--	--	--	--	4.90	3.39	1.55	2.61	2.31	2.96	2.97	3.97	4.34	2.31	2.96	2.97
	H		1.49	1.27	1.34	1.81	2.31	--	--	--	--	--	--	2.06	3.13	3.28	--	--	2.06
	J		.12	.16	.25	.31	.37	.39	.55	.12	.19	.25	.34	.34	.47	.39	.25	.34	.34
	K		.19	.27	.31	.48	.56	.68	1.35	.19	.31	.40	.50	.59	.84	1.03	.40	.50	.59
	L		.197	.197	.276	.354	.512	.669	.787	.197	.276	.512	.669	.669	.787	.787	.512	.669	.669
	FULL GRIP DIA.		.55	.67	1.02	1.50	2.09	2.72 4361	6.69 9.05	.55	.98	1.73	2.38	2.91	4.33	5.74	1.79	2.38	2.91
	CENTRAL GRIP DIA.		.43	.55	.86	1.28	1.78	2.31 4.20	6.22 8.58	.44	.83	1.42	2.00	2.51	3.86	5.27	1.49	2.00	2.51
	OFFSET GRIP DIA.		.27	.39	.63	.94	1.30	1.73 3.62	5.59 7.96	.28	.60	.94	1.42	1.93	3.24	4.66	1.02	1.42	1.93
	HALF-OFFSET GRIP DIA.		.35	.47	.75	1.14	1.57	2.05 3.94	5.90 8.27	.36	.72	1.22	1.73	2.24	3.54	4.96	1.29	1.73	2.24
	N		.35	.19	.35	.55	.71	.79	1.97	.35	.20	.47	.71	.79	1.18	1.57	.38	.65	.79
	P		.61	.32	.45	.56	.78	.56	--	.28	--	--	--	.32	.44	.34	--	--	1.18
	R		.33	.04	.06	.09	.06	--	--	.22	--	--	--	--	.16	.16	--	--	--
DIMENSIONS FOR FLANGE MOUNT DRIVERS	S		--	--	--	--	--	5.512	8.858	3.937	3.937	3.937	5.512	5.512	5.512	6.694	3.937	5.512	5.512
	T		--	--	--	--	--	6.220	8.071	3.150	3.150	3.150	4.960	4.960	6.220	7.323	3.150	4.960	4.960
	U	SIZE	--	--	--	--	--	.422	12MM	.332	.332	.332	.332	.332	.413	.422	.332	.332	.332
		NO.	--	--	--	--	--	8	TAP	6	6	6	8	8	8	8	6	8	8
	W		--	--	--	--	--	2.17	2.95	1.25	1.25	.78	1.00	1.00	1.97	2.22	.78	1.00	1.00
	A		--	--	--	--	--	6.09	7.69	4.76	4.86	4.33	5.34	5.31	6.41	6.59	4.33	5.34	5.31
	B		--	--	--	--	--	9.74	13.52	5.89	6.01	6.06	8.16	8.16	11.22	11.25	6.06	8.16	8.16
	C		--	--	--	--	--	7.48	9.84	5.00	5.00	4.94	6.28	6.28	7.06	8.25	4.94	6.28	6.28
DIMENSIONS FOR CHUCK MOUNT DRIVERS	A		4.39	4.52	4.53	4.68	--	--	--	4.48	4.55	3.96	4.61	4.86	--	--	3.96	4.61	4.86
	C		1.35	1.00	1.06	1.38	--	--	--	--	--	--	--	--	--	--	--	--	--
	G		8.19	8.32	8.33	8.48	--	--	--	5.92	5.99	7.71	8.36	8.61	--	--	7.71	8.36	8.61
	K		.14	.27	.28	.43	--	--	--	.19	.31	.38	.58	.55	--	--	.38	.58	.55

DIMENSIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE
*RELEASE NUT AS A DIAMETER OF 3.94

TOOL SERIES 4210
ELASTOMER TYPE
.27-.55 GRIPPING RANGE

4210 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
113	#3 Morse Taper	60 Lbs	84 Lbs
114	#4 Morse Taper	60 Lbs	84 Lbs
115	#5 Morse Taper	60 Lbs	84 Lbs
200	Straight Shank	60 Lbs	84 Lbs
400	Chuck Mounted	60 Lbs	84 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
01	.118-.197	4399-151-00001
02	.197-.354	4399-151-00002
04	.354-.433	4399-151-00004

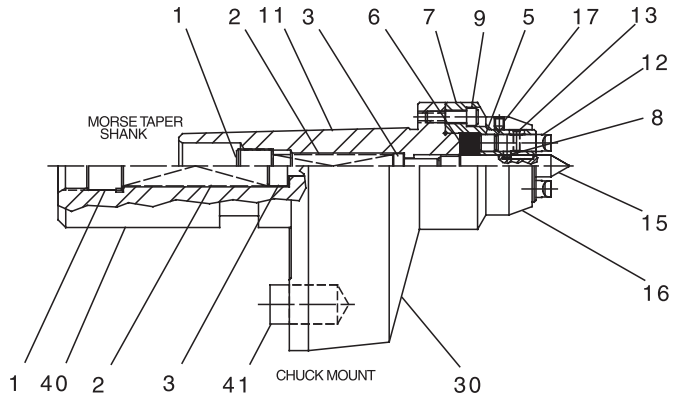
SPARE DRIVE PINS (4 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4399-121-11100	4399-121-25100
4399-121-12100	4399-121-13100
4399-121-16100	4399-121-16100
4399-121-14100	4399-121-14100

DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
.27	Offset	.28	.54	111	251
.35	Half Offset	.36	.70	121	231
.43	Central	.44	.85	161	261
.55	Full Width	.56	1.10	141	241

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug	4399-012-01204
*1	Screw Plug	4399-012-02006
2	Comp Spring	4399-021-06310
*2	Comp Spring	9903-003-00110
3	Spring Pin	4399-031-06310
*3	Spring Pin	4399-032-05708
4	Pressure Pin	4399-042-01405
5	Spacer	4399-051-00505
6	Plastic Ring	4399-061-01803
7	Carrier Body	4399-071-04218
8	CTR PT Retainer	4399-081-01005
9	Cap Screw	9904-001-99002
11	#3 MT Shank	4399-113-01700
11	#4 MT Shank	4399-114-01700
11	#5 MT Shank	4399-115-01700
12	Drive Pin	See Table
13	Drive Pin Retainer	4399-132-00602
14	Pin	9908-010-99003
15	Center Point	See Table
16	Nose Cap	4399-161-03024
17	Screw	9904-082-99001
*30	Chuck Adapter	4310-400-00000
*40	Flange Sleeve	4399-401-00000
*41	Spiral Pin	9908-010-90033
* Chuck Mount Only		

ELASTOMER TYPE DRIVERS



TOOL SERIES 4211
ELASTOMER TYPE
.39-.67 GRIPPING RANGE

4211 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
113	#3 Morse Taper	60 Lbs	84 Lbs
114	#4 Morse Taper	60 Lbs	84 Lbs
115	#5 Morse Taper	60 Lbs	84 Lbs
200	Straight Shank	60 Lbs	84 Lbs
400	Chuck Mounted	60 Lbs	84 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
05	.118-.197	4399-152-00005
06	.197-.275	4399-152-00006
07	.275-.354	4399-152-00007
08	.354-.433	4399-152-00008
09	.433-.511	4399-152-00009

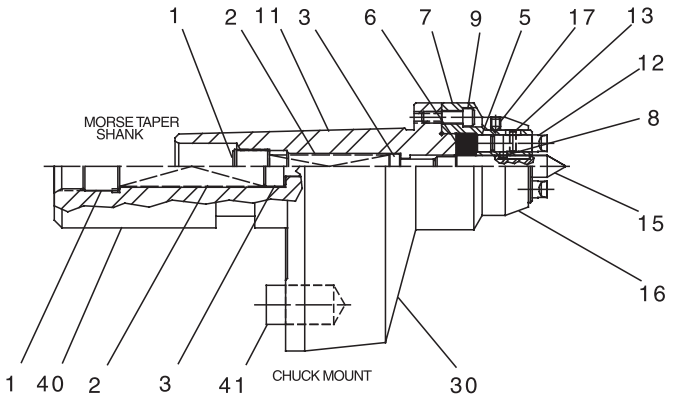
SPARE DRIVE PINS (5 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4399-121-11100	4399-121-25100
4399-121-12100	4399-121-13100
4399-121-16100	4399-121-16100
4399-121-14100	4399-121-14100

DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
.39	Offset	.40	.78	111	251
.47	Half Offset	.48	.94	121	231
.55	Central	.56	1.10	161	261
.67	Full Width	.68	1.34	141	241

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug	4399-012-01204
*1	Screw Plug	4399-012-02006
2	Comp Spring	4399-021-06310
*2	Comp Spring	9903-003-00110
3	Spring Pin	4399-031-06310
*3	Spring Pin	4399-032-06708
5	Spacer	4399-051-00505
6	Plastic Ring	4299-061-01803
7	Carrier Body	4399-072-04217
8	CTR PT Retainer	4399-082-01102
9	Cap Screw	9904-001-99002
11	#3 MT Shank	4399-113-01700
11	#4 MT Shank	4399-114-01700
11	#5 MT Shank	4399-115-01700
12	Drive Pin	See Table
13	Drive Pin Retainer	9908-010-99025
15	Center Point	See Table
16	Nose Cap	4399-161-03024
17	Screw	9904-082-99001
18	Pin	9908-010-99004
*30	Chuck Adapter	4311-400-00000
*40	Flange Sleeve	4399-401-00000
*41	Spiral Pin	9908-010-90033
* Chuck Mount Only		

ELASTOMER TYPE DRIVERS



E-mail: salesweb@speedgrip.com Web Site: www.speedgrip.com

TOOL SERIES 4212
ELASTOMER TYPE
.63-1.02 GRIPPING RANGE

4212 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
113	#3 Morse Taper	60 Lbs	84 Lbs
114	#4 Morse Taper	60 Lbs	84 Lbs
115	#5 Morse Taper	60 Lbs	84 Lbs
200	Straight Shank	60 Lbs	84 Lbs
400	Chuck Mounted	100 Lbs	160 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
10	.197-.275	4399-152-00010
11	.275-.354	4399-152-00011
12	.354-.433	4399-152-00012
13	.433-.511	4399-152-00013
14	.511-.590	4399-152-00014
15	.590-.669	4399-152-00015
16	.669-.748	4399-152-00016

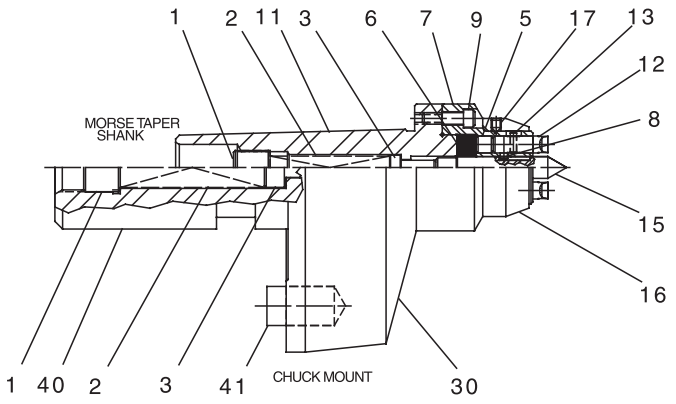
SPARE DRIVE PINS (5 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4399-121-11200	4399-121-25200
4399-121-12200	4399-121-13200
4399-121-16200	4399-121-16200
4399-121-14200	4399-121-14200

DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
.63	Offset	.64	1.26	112	252
.75	Half Offset	.76	1.50	122	232
.86	Central	.87	1.70	162	262
1.02	Full Width	1.03	2.04	142	242

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug	4399-012-01404
*1	Screw Plug	4399-012-02006
2	Comp Spring	4399-021-06310
*2	Comp Spring	9903-003-00113
3	Spring Pin	4399-032-02006
*3	Spring Pin	4399-032-07108
5	Spacer	4399-051-00707
6	Plastic Ring	4299-061-02709
7	Carrier Body	4399-072-05227
8	CTR PT Retainer	4399-082-01103
9	Cap Screw	9904-001-99053
11	#3 MT Shank	4399-113-02700
11	#4 MT Shank	4399-114-02700
11	#5 MT Shank	4399-115-02700
12	Drive Pin	See Table
13	Drive Pin Retainer	4399-132-00802
15	Center Point	See Table
16	Nose Cap	4399-162-05230
17	Screw	9904-034-99001
*30	Chuck Sleeve	4312-400-00000
*40	Flange Sleeve	4399-401-00000
*41	Spiral Pin	9908-010-90033
* Chuck Mount Only		

ELASTOMER TYPE DRIVERS



TOOL SERIES 4213
ELASTOMER TYPE
.94-1.50 GRIPPING RANGE

4213 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
113	#3 Morse Taper	60 Lbs	84 Lbs
114	#4 Morse Taper	60 Lbs	84 Lbs
115	#5 Morse Taper	60 Lbs	84 Lbs
116	#6 Morse Taper	60 Lbs	84 Lbs
200	Straight Shank	60 Lbs	84 Lbs
400	Chuck Mounted	100 Lbs	160 Lbs

TOOL ORDER CODE	CENTER POINTS		
	CENTER HOLE DIA. RANGE		SPARE PART ORDERING CODE
20	.275-	.393	4399-152-00020
21	.393-	.511	4399-152-00021
22	.511-	.629	4399-152-00022
23	.629-	.748	4399-152-00023
24	.748-	.866	4399-152-00024
25	.866-	.984	4399-152-00025
26	.984-	1.102	4399-152-00026
27	1.102-	1.220	4399-152-00027

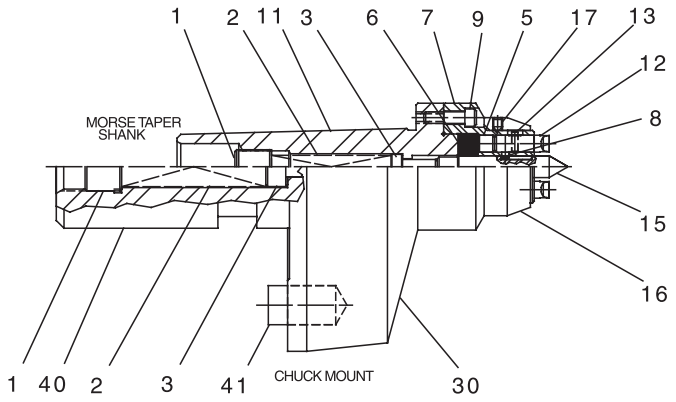
SPARE DRIVE PINS (6 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4399-121-11300	4399-121-25300
4399-121-12300	4399-121-13300
4399-121-16300	4399-121-16300
4399-121-14300	4399-121-14300

DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
.94	Offset	.95	1.88	113	253
1.14	Half Offset	1.15	2.28	123	233
1.28	Central	1.29	2.55	163	263
1.50	Full Width	1.51	3.00	143	243

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug	4399-012-01505
*1	Screw Plug	4399-012-02006
2	Comp Spring	9903-003-00119
*2	Comp Spring	9903-003-00113
3	Spring Pin	4399-032-03008
*3	Spring Pin	4399-032-05808
5	Spacer	4399-051-00909
6	Plastic Ring	4299-061-03914
7	Carrier Body	4399-072-07039
8	CTR PT Retainer	4399-082-01704
9	Screw	9904-001-99004
11	#3 MT Shank	4399-113-03900
11	#4 MT Shank	4399-114-03900
11	#5 MT Shank	4399-115-03900
11	#6 MT Shank	4399-116-03900
12	Drive Pin	See Table
13	Drive Pin Retainer	4399-132-01103
15	Center Point	See Table
16	Nose Cap	4399-162-07044
17	Screw	9904-034-99005
*30	Chuck Adapter	4313-400-00000
*40	Flange Sleeve	4399-401-00000
*41	Spiral Pin	9908-010-90033
* Chuck Mount Only		

ELASTOMER TYPE DRIVERS



TOOL SERIES 4214
ELASTOMER TYPE
1.30-2.09 GRIPPING RANGE

4214 – ___ ___ ___ – ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
134	#4 Morse Taper	75 Lbs	84 Lbs
135	#5 Morse Taper	75 Lbs	84 Lbs
116	#6 Morse Taper	75 Lbs	84 Lbs
200	Straight Shank	60 Lbs	84 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
30	.393- .511	4399-152-00030
31	.511- .629	4399-152-00031
32	.629- .748	4399-152-00032
33	.748- .866	4399-152-00033
34	.866- .984	4399-152-00034
35	.984- 1.102	4399-152-00035
36	1.102- 1.220	4399-152-00036
37	1.220- 1.338	4399-152-00037
38	1.338- 1.456	4399-152-00038
39	1.456- 1.574	4399-152-00039

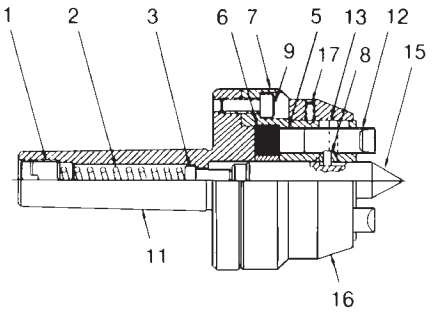
SPARE DRIVE PINS (6 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4399-121-11400	4399-121-25400
4399-121-12400	4399-121-13400
4399-121-16400	4399-121-16400
4399-121-14400	4399-121-14400

DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
1.30	Offset	1.31	2.60	114	254
1.57	Half Offset	1.58	3.14	124	234
1.78	Central	1.79	3.57	164	264
2.09	Full Width	2.10	4.18	144	244

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug	4399-012-02006
2	Comp Spring	9903-003-00113
3	Spring Pin	4399-032-02409
5	Spacer	4399-051-01313
6	Plastic Ring	4299-061-05418
7	Carrier Body	4399-072-09254
8	CTR PT Retainer	4399-082-02404
9	Screw	9904-001-99005
11	#4 MT Shank	4314-114-05400
11	#5 MT Shank	4314-115-05400
11	#6 MT Shank	4399-116-05400
12	Drive Pin	See Table
13	Drive Pin Retainer	4399-132-01504
15	Center Point	See Table
16	Nose Cap	4399-161-08260
17	Screw	9904-034-99003

ELASTOMER TYPE DRIVERS



The Convenience of a Face Driver
The Accuracy of a Hydraulic Arbor

Features

Accuracy

The precision ground hydraulic shell holds the center point on centerline within .0002" T.I.R.
Lateral positioning of the part is constant since the center point is locked into position.

Efficiency

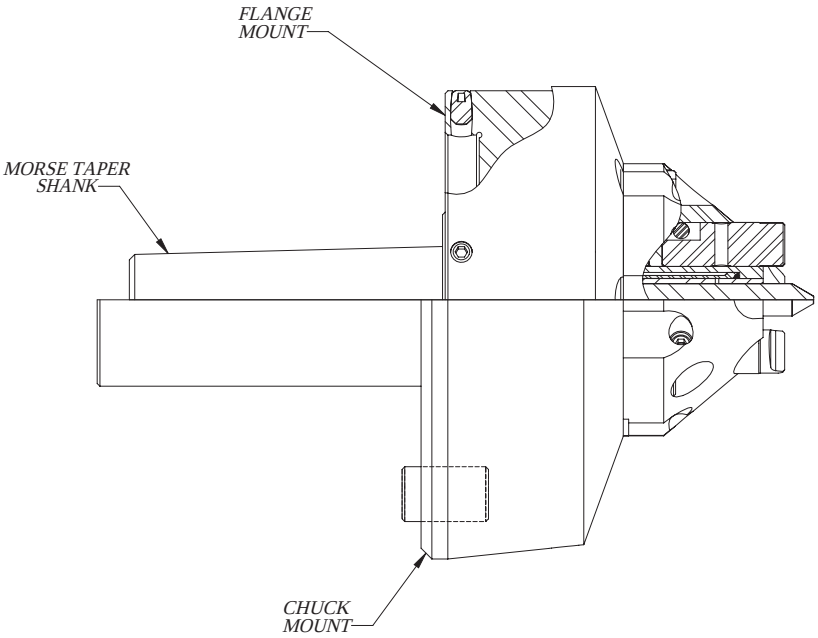
Since part positioning is done by the center point, drive pin life is extended.
Drive pins and center points are quickly changed from the front of the assembly.
The new Hydra-Drive requires less tailstock pressure to maintain engagement.

Quality

This new face driver combines the quality and innovation of our Madison Face Driver with Cameron Hydraulic Chucks and Arbors.

Flexibility

Adapts to American Standard, Morse Taper, and Jaw Chuck mountings.
Ability to handle greater side loads during hobbing or grinding applications.



TOOL SERIES HD-62
QUICK CHANGE HYDRAULIC TYPE
1.02-1.79 GRIPPING RANGE

HD-62 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
144	#4 Morse Taper	60 Lbs	84 Lbs
145	#5 Morse Taper	60 Lbs	84 Lbs
146	#6 Morse Taper	60 Lbs	84 Lbs
200	Straight Shank	60 Lbs	84 Lbs
300	Flange Mount	60 Lbs	84 Lbs
391	Flange H.D. Spring	300 Lbs	350 Lbs
392	Flange H.D. Spring	525 Lbs	660 Lbs
400	Chuck Mount	100 Lbs	160 Lbs
491	Chuck H.D. Spring	165 Lbs	220 Lbs
492	Chuck H.D. Spring	420 Lbs	560 Lbs
493	Chuck H.D. Spring	825 Lbs	1000 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
40	.231- .350	6200-152-00040
41	.350- .470	6200-152-00041
42	.470- .590	6200-152-00042
43	.590- .710	6200-152-00043
44	.710- .830	6200-152-00044
45	.830- .950	6200-152-00045
46	.950- 1.07	6200-152-00046
47	1.07- 1.19	6200-152-00047
48	1.19- 1.31	6200-152-00048

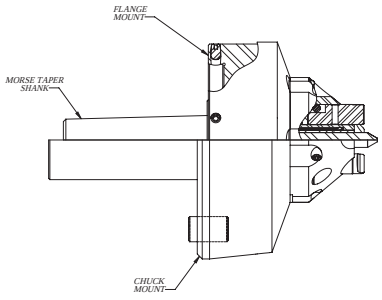
SPARE DRIVE PINS (5 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4362-121-11400	4362-121-25400
4362-121-12400	4362-121-13400
4362-121-16400	4362-121-26400
4362-121-14400	4362-121-24400

DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
1.02	Offset	1.03	2.00	114	254
1.29	Half Offset	1.30	2.50	124	234
1.49	Central	1.50	3.00	164	264
1.79	Full Width	1.80	3.50	144	244

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug MT	4399-012-01505
1	Screw Plug CH	4399-012-02006
2	Comp Spring MT,FL	4399-024-04310
2	Comp Spring CH	9903-003-00113
3	Spring Pin MT,FL	6200-032-00000
3	Spring Pin CH	6200-032-07105
7	Carrier Body	6200-075-00000
8	Center Point Retainer	9908-012-00064
9	Cap Screw	9904-001-99001
10	#4 MT Shank	4362-104-05400
10	#5 MT Shank	4362-105-05400
10	#6 MT Shank	4362-106-05400
12	Drive Pin	See Chart
13	Drive Pin Retainer	4200-132-00000
15	Center Point	See Chart
22	O-Ring	9902-100-99002
23	O-Ring	9902-100-99044
24	Cap Screw	9904-001-99038
25	Copper Washer	9910-016-99002
30	Chuck Adapter	4362-400-00000
30	Flange Adapter	4362-300-00000
32	Dowel Pin #4 MT	9908-010-99013
32	Dowel Pin #5 MT	9908-010-99009
32	Dowel Pin #6 MT	9908-010-99010
33	Stir Screw FL	9904-030-32004

DET. NO.	COMPONENT	PART NUMBER
40	Flange Sleeve CH	4399-401-00000
40	Flange Sleeve FL	4362-401-00000
41	Spiral Pin	9908-010-90033
50	Release Nut #4 MT	4399-501-00036
50	Release Nut #5 MT	4399-501-00048
50	Release Nut #6 MT	4399-501-00068
51	Piston Assembly	4262-182-00000
70	O-ring	6200-100-90062
71	Nylon Line	6200-180-00000
72	Centering Sleeve	6200-170-00000
73	Steel Ball	6200-100-90162
74	Bleed Screw	6200-100-90262
MT=Morse Taper	CH=Chuck Mount	FL=Flange Mount



TOOL SERIES HD-63
QUICK CHANGE HYDRAULIC TYPE
1.42-2.38 GRIPPING RANGE

HD-63 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
145	#5 Morse Taper	100 Lbs	160 Lbs
146	#6 Morse Taper	100 Lbs	160 Lbs
200	Straight Shank	100 Lbs	160 Lbs
300	Flange Mount	100 Lbs	160 Lbs
391	Flange H.D. Spring	165 Lbs	220 Lbs
392	Flange H.D. Spring	420 Lbs	560 Lbs
393	Flange H.D. Spring	825 Lbs	1000 Lbs
400	Chuck Mount	100 Lbs	160 Lbs
491	Chuck H.D. Spring	165 Lbs	220 Lbs
492	Chuck H.D. Spring	420 Lbs	560 Lbs
493	Chuck H.D. Spring	825 Lbs	1000 Lbs

TOOL ORDER CODE	CENTER POINTS		
	CENTER HOLE DIA. RANGE		SPARE PART ORDERING CODE
30	.393	-.511	6300-152-00030
31	.511	-.629	6300-152-00031
32	.629	-.748	6300-152-00032
33	.748	-.866	6300-152-00033
34	.866	-.984	6300-152-00034
35	.984	-1.102	6300-153-00035
36	1.102	-1.220	6300-153-00036
37	1.220	-1.338	6300-153-00037
38	1.338	-1.456	6300-153-00038
39	1.456	-1.574	6300-153-00039

SPARE DRIVE PINS (5 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4363-121-11500	4363-121-25500
4363-121-12500	4363-121-13500
4363-121-16500	4363-121-16500
4363-121-14500	4363-121-14500

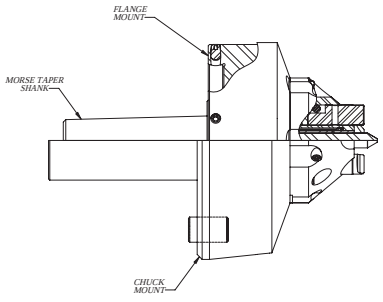
DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
1.42	Offset	1.43	2.85	115	255
1.73	Half Offset	1.74	3.42	125	235
2.00	Central	2.01	4.01	165	265
2.38	Full Width	2.39	4.80	145	245

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug MT, CH	4399-012-02006
2	Comp Spring	9903-003-00113
3	Spring Pin MT,FL	6300-032-00000
3	Spring Pin CH	4399-032-04608
7	Carrier Body	6300-073-00000
8	Center Point Retainer	9908-012-00065
9	Cap Screw	9904-001-99005
10	#5 MT Shank	4364-105-08500
10	#6 MT Shank	4364-106-08500
12	Drive Pin	See Chart
13	Drive Pin Retainer	4300-132-00000
15	Center Point	See Chart
20	Bushing MT, FL	6300-062-00000
20	Bushing CH	6300-062-02682
22	O-Ring	9902-100-99048
23	O-Ring	9902-100-99052
24	Cap Screw	9904-001-99038
25	Copper Washer	9910-016-99002
30	Chuck Adapter	4364-400-00000
30	Flange Adapter	4364-300-00000
32	Dowel Pin #5 MT	9908-010-90012
32	Dowel Pin #6 MT	9908-010-90011
33	Stir Screw FL	9904-030-32004

DET. NO.	COMPONENT	PART NUMBER
40	Flange Sleeve CH	4399-401-00000
40	Flange Sleeve FL	4364-401-00000
41	Spiral Pin	9908-010-90033
50	Release Nut #5 MT	4399-501-00048
50	Release Nut #6 MT	4399-501-00068
51	Piston Assembly	4264-182-00000
70	O-RING	6300-100-99003
71	Nylon Liner	6300-180-00000
72	Centering Sleeve	6300-170-00000
73	Ball	6200-100-90162
74	Bleed Screw	6200-100-90262

MT=Morse Taper CH=Chuck Mount FL=Flange Mount



TOOL SERIES HD-64
QUICK CHANGE HYDRAULIC TYPE
1.93-2.91 GRIPPING RANGE

HD-64 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
145	#5 Morse Taper	100 Lbs	160 Lbs
146	#6 Morse Taper	100 Lbs	160 Lbs
200	Straight Shank	100 Lbs	160 Lbs
300	Flange Mount	100 Lbs	160 Lbs
391	Flange H.D. Spring	165 Lbs	220 Lbs
392	Flange H.D. Spring	420 Lbs	560 Lbs
393	Flange H.D. Spring	825 Lbs	1000 Lbs
400	Chuck Mount	100 Lbs	160 Lbs
491	Chuck H.D. Spring	165 Lbs	220 Lbs
492	Chuck H.D. Spring	420 Lbs	560 Lbs
493	Chuck H.D. Spring	825 Lbs	1000 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
70	.393- .590	6400-152-00070
71	.590- .787	6400-152-00071
72	.787- .984	6400-152-00072
73	.984- 1.181	6400-152-00073
74	1.181- 1.378	6400-152-00074
75	1.378- 1.575	6400-152-00075
76	1.575- 1.772	6400-152-00076
77	1.772- 1.969	6400-152-00077
78	1.969- 2.166	6400-152-00078
79	2.166- 2.363	6400-152-00079

SPARE DRIVE PINS (6 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4363-121-11500	4363-121-25500
4363-121-12500	4363-121-13500
4363-121-16500	4363-121-16500
4363-121-14500	4363-121-14500

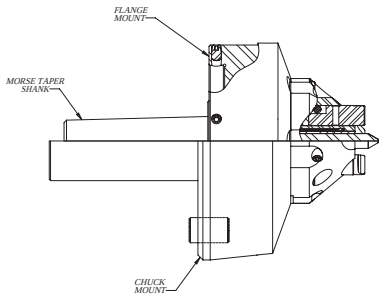
DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
1.93	Offset	1.94	3.82	115	255
2.24	Half Offset	2.25	4.44	125	235
2.51	Central	2.52	5.00	165	265
2.91	Full Width	2.92	5.78	145	245

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug MT, CH	4399-012-02006
2	Comp Spring	9903-003-00113
3	Spring Pin MT,FL , CH	4364-032-00000
7	Carrier Body	6400-075-00000
8	Center Point Retainer	9908-012-00066
9	Cap Screw	9904-001-99007
10	#5 MT Shank	4364-105-08500
10	#6 MT Shank	4364-106-08500
12	Drive Pin	See Chart
13	Drive Pin Retainer	4300-132-00000
15	Center Point	See Chart
20	Bushing MT, FL	6400-062-00000
20	Bushing CH	6400-062-02682
22	O-Ring	9902-100-99048
23	O-Ring	9902-100-99052
24	Cap Screw	9904-001-99038
25	Copper Washer	9910-016-99002
30	Chuck Adapter	4363-400-00000
30	Flange Adapter	4364-300-00000
32	Dowel Pin #5 MT	9908-010-90012
32	Dowel Pin #6 MT	9908-010-90011
33	Stir Screw FL	9904-030-32004

DET. NO.	COMPONENT	PART NUMBER
40	Flange Sleeve CH	4399-401-00000
40	Flange Sleeve FL	4364-401-00000
41	Spiral Pin	9908-010-90033
50	Release Nut #5 MT	4399-501-00048
50	Release Nut #6 MT	4399-501-00068
51	Piston Assembly	4264-182-00000
70	O-RING	6400-100-99064
71	Nylon Liner	6400-180-00000
72	Centering Sleeve	6400-170-00000
73	Ball	6200-100-90162
74	Bleed Screw	6200-100-90262

MT=Morse Taper CH=Chuck Mount FL=Flange Mount



Our Hydraulic Face Drivers have always had the best individual drive pin compensation on the market requiring the lowest tailstock force in the industry. Madison Face Drivers reduce machine spindle bearing and live center wear. Our new quick change Hydraulic Face Drivers have drive pins and center points that can be changed without any disassembly. This design change has also increased tool clearances so your Madison Face Driver is more versatile than ever.

- Quick-Change Drive Pins
- Quick-Change Center Points
- More Tool Clearance

- Fits existing Madison Drive Shanks
- Available with Morse Taper, Chuck Mount and Flange Mount
- Stock sizes from .29" to over 6.00"

TOOL SERIES 4000
QUICK CHANGE TYPE
.28-.55 GRIPPING RANGE

4000 – ___ ___ ___ – ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
143	#3 Morse Taper	60 Lbs	84 Lbs
144	#4 Morse Taper	60 Lbs	84 Lbs
145	#5 Morse Taper	60 Lbs	84 Lbs
300	Flange Mount	60 Lbs	84 Lbs
400	Chuck Mounted	60 Lbs	84 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
01	.118-.197	4360-151-00001
02	.197-.354	4360-151-00002
04	.354-.433	4360-151-00004

SPARE DRIVE PINS (4 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4360-121-11100	4360-121-25100
4360-121-12100	4360-121-13100
4360-121-16100	4360-121-26100
4360-121-14100	4360-121-24100

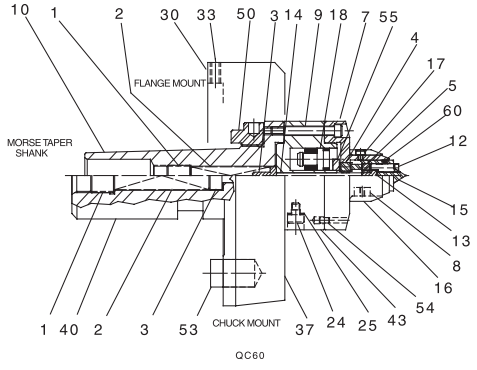
DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
.28	Offset	.29	.58	111	251
.36	Half Offset	.37	.74	121	231
.44	Central	.45	.90	161	261
.55	Full Width	.56	1.10	141	241

Component Parts

OIL HYDRAULIC TYPE DRIVERS

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug	4399-012-01204
2	Comp Spring	4399-021-06310
3	Spring Pin	4399-031-06310
4	Pressure Pin	4399-042-01405
5	Spacer	4399-051-00505
7	Carrier Body	4360-075-00000
8	CTR PT Retainer	4399-081-01005
9	Cap Screw	9904-001-99072
10	#3 MT Shank	4360-103-00000
10	#4 MT Shank	4360-104-00000
10	#5 MT Shank	4360-105-00000
12	Drive Pin	See Table
13	Drive Pin Retainer	4360-135-00000
14	Cylinder Pin	4360-141-00000
15	Center Point	See Table
16	Nose Cap	4399-161-03024
17	Cap Ret. Screw	9904-082-99001
18	Piston Assembly	4260-182-00000
24	Inlet Screw	9904-004-99001
25	Inlet Washer	9910-016-99003
30	Flange Shank	4360-300-00000
33	Centering Screw	9904-030-32004

DET. NO.	COMPONENT	PART NUMBER
37	Chuck Shank	4360-400-00000
43	Cylinder Body	4360-431-00000
50	Rel. Nut - #3 MT	4399-501-00036
50	Rel. Nut - #4 MT	4399-501-00036
50	Rel. Nut - #5 MT	4399-501-00048
53	Spiral Pin	9908-010-90033
54	Roll Pin	9908-012-00063
55	Lever	4360-000-00000
60	O-Ring	9902-100-94360



TOOL SERIES 4100
QUICK CHANGE HYDRAULIC TYPE
.60-.98 GRIPPING RANGE

4100 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
143	#3 Morse Taper	60 Lbs	84 Lbs
144	#4 Morse Taper	60 Lbs	84 Lbs
145	#5 Morse Taper	60 Lbs	84 Lbs
200	Straight Shank	60 Lbs	84 Lbs
300	Flange Mount	60 Lbs	84 Lbs
400	Chuck Mounted	60 Lbs	84 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
05	.118-.197	4361-152-00005
06	.197-.275	4361-152-00006
07	.275-.354	4361-153-00007
08	.354-.433	4361-153-00008
09	.433-.511	4361-153-00009

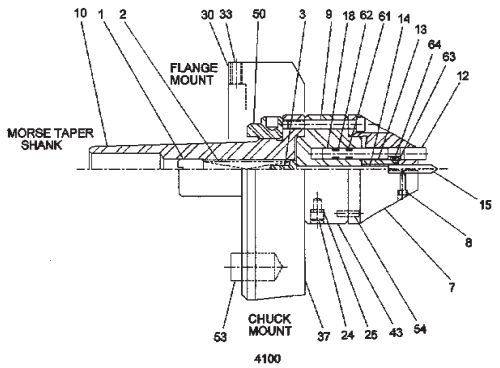
SPARE DRIVE PINS (4 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4361-121-11200	4361-121-25200
4361-121-12200	4361-121-13200
4361-121-16200	4361-121-26200
4361-121-14200	4361-121-24200

DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
.60	Offset	.61	1.22	112	252
.72	Half Offset	.73	1.46	122	232
.83	Central	.84	1.68	162	262
.98	Full Width	.99	2.00	142	242

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug	4399-012-01204
2	Comp Spring	4399-021-06310
3	Spring Pin	4399-031-06310
7	Carrier Body	4100-072-00000
8	CTR PT Retainer	4361-085-00000
9	Cap Screw	9904-001-99072
10	#3 MT Shank	4360-103-00000
10	#4 MT Shank	4360-104-00000
10	#5 MT Shank	4360-105-00000
12	Drive Pin	See Table
13	Drive Pin Retainer	4100-132-00000
14	Cylinder Pin	4360-141-00000
15	Center Point	See Table
18	Piston Assembly	4100-182-00000
24	Inlet Screw	9904-004-99001
25	Inlet Washer	9910-016-99002
30	Flange Shank	4360-300-00000
33	Centering screw	9904-030-32004
37	Chuck Shank	4360-400-00000
43	Cylinder Body	4100-431-00000
50	Rel. Nut - #3MT	4399-501-00036

DET. NO.	COMPONENT	PART NUMBER
50	Rel. Nut - #4 MT	4399-501-00036
50	Rel. Nut - #5 MT	4399-501-00048
53	Spiral Pin	9908-010-90033
54	Roll Pin	9908-012-00063
61	O-Ring	4100-100-00006
62	Parbak	4100-200-00006
63	O-Ring	4100-100-00008
64	O-Ring	4100-100-00110



TOOL SERIES 4200
QUICK CHANGE HYDRAULIC TYPE
.94-1.73 GRIPPING RANGE

4200 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
144	#4 Morse Taper	60 Lbs	84 Lbs
145	#5 Morse Taper	60 Lbs	84 Lbs
146	#6 Morse Taper	60 Lbs	84 Lbs
200	Straight Shank	60 Lbs	84 Lbs
300	Flange Mount	60 Lbs	84 Lbs
391	Flange H.D. Spring	300 Lbs	350 Lbs
392	Flange H.D. Spring	525 Lbs	660 Lbs
400	Chuck Mount	100 Lbs	160 Lbs
491	Chuck H.D. Spring	165 Lbs	220 Lbs
492	Chuck H.D. Spring	420 Lbs	560 Lbs
493	Chuck H.D. Spring	825 Lbs	1000 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
40	.275- .393	4362-152-00040
41	.393- .511	4362-152-00041
42	.511- .629	4362-152-00042
43	.629- .748	4362-152-00043
44	.748- .866	4362-152-00044
45	.866- .984	4362-152-00045
46	.984- 1.102	4362-152-00046
47	1.102- 1.220	4362-152-00047
48	1.220- 1.338	4362-152-00048

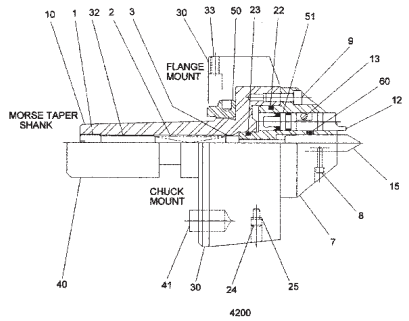
SPARE DRIVE PINS (5 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4362-121-11400	4362-121-25400
4362-121-12400	4362-121-13400
4362-121-16400	4362-121-26400
4362-121-14400	4362-121-24400

DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
.94	Offset	.95	1.84	114	254
1.22	Half Offset	1.23	2.40	124	234
1.42	Central	1.43	2.85	164	264
1.73	Full Width	1.74	3.42	144	244

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug MT	4399-012-01505
1	Screw Plug CH	4399-012-02006
2	Comp Spring MT, FL	4399-024-04310
2	Comp Spring CH	9903-003-00113
3	Spring Pin MT, FL	4362-032-00000
3	Spring Pin CH	4399-032-07105
7	Carrier Body	4200-073-00000
8	CTR PT Retainer	4362-085-00000
9	Cap Screw	9904-001-99001
10	#4 MT Shank	4362-104-05400
10	#5 MT Shank	4362-105-05400
10	#6 MT Shank	4362-106-05400
12	Drive Pin	See Table
13	Drive Pin Retainer	4200-132-00000
15	Center Point	See Table
18	Piston Assembly	4262-182-00000
22	O-Ring	9902-100-99002
23	O-Ring	9902-100-99044
24	Cap Screw	9904-001-99038
25	Copper Washer	9910-016-99002
30	Chuck Adapter	4362-400-00000
30	Flange Adapter	4362-300-00000
32	Dowel Pin #4 MT	9908-010-99013

DET. NO.	COMPONENT	PART NUMBER
32	Dowel Pin #5 MT	9908-010-99009
32	Dowel Pin #6 MT	9908-010-99010
33	Stir Screw CH	9904-030-32004
40	Flange Sleeve CH	4399-401-00000
40	Flange Sleeve FL	4362-401-00000
41	Spiral Pin	9908-010-90033
50	Release Nut #4 MT	4399-501-00036
50	Release Nut #5 MT	4399-501-00048
50	Release Nut #6 MT	4399-501-00068
60	O-Ring	9902-100-94362
MT=Morse Taper	CH=Chuck Mount	FL=Flange Mount



4200

TOOL SERIES 4300
QUICK CHANGE HYDRAULIC TYPE
1.42-2.38 GRIPPING RANGE

4300 – ___ ___ ___ – ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
145	#5 Morse Taper	100 Lbs	160 Lbs
146	#6 Morse Taper	100 Lbs	160 Lbs
200	Straight Shank	100 Lbs	160 Lbs
300	Flange Mount	100 Lbs	160 Lbs
391	Flange H.D. Spring	165 Lbs	220 Lbs
392	Flange H.D. Spring	420 Lbs	560 Lbs
393	Flange H.D. Spring	825 Lbs	1000 Lbs
400	Chuck Mount	100 Lbs	160 Lbs
491	Chuck H.D. Spring	165 Lbs	220 Lbs
492	Chuck H.D. Spring	420 Lbs	560 Lbs
493	Chuck H.D. Spring	825 Lbs	1000 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
30	.393- .511	4363-152-00030
31	.511- .629	4363-152-00031
32	.629- .748	4363-152-00032
33	.748- .866	4363-152-00033
34	.866- .984	4363-152-00034
35	.984- 1.102	4363-153-00035
36	1.102- 1.220	4363-153-00036
37	1.220- 1.338	4363-153-00037
38	1.338- 1.456	4363-153-00038
39	1.456- 1.574	4363-153-00039

SPARE DRIVE PINS (5 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4363-121-11500	4363-121-25500
4363-121-12500	4363-121-13500
4363-121-16500	4363-121-16500
4363-121-14500	4363-121-14500

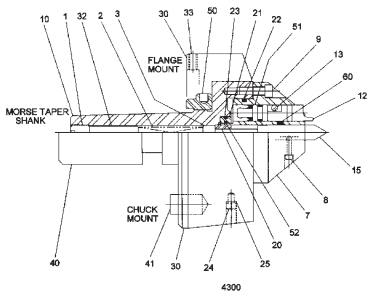
DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
1.42	Offset	1.43	2.85	115	255
1.73	Half Offset	1.74	3.42	125	235
2.00	Central	2.01	4.01	165	265
2.38	Full Width	2.39	4.80	145	245

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug MT,CH	4399-012-02006
2	Comp Spring	9903-003-00113
3	Spring Pin MT,FL	4364-032-00000
3	Spring Pin CH	4399-032-04608
7	Carrier Body	4300-073-00000
8	CTR PT Retainer	4363-085-00000
9	Cap Screw	9904-101-99005
10	#5 MT Shank	4364-105-08500
10	#6 MT Shank	4364-106-08500
12	Drive Pin	See Table
13	Drive Pin Retainer	4300-132-00000
15	Center Point	See Table
18	Piston Assembly	4264-182-00000
20	Bushing	4363-062-02682
21	Seal Ring	4363-211-00000
22	O-Ring	9902-100-99048
23	O-Ring	9902-100-99052
24	Cap Screw	9904-001-99038
25	Copper Washer	9910-016-99002
30	Flange Adapter FL	4364-300-00000

DET. NO.	COMPONENT	PART NUMBER
30	Chuck Adapter CH	4363-400-00000
32	Dowel Pin #5 MT	9908-010-90012
32	Dowel Pin #6 MT	9908-010-90011
33	Stir Screw FL	9904-030-32004
40	Flange Sleeve CH	4399-401-00000
40	Flange Sleeve FL	4364-401-00000
41	Spiral Pin CH	9908-010-90033
50	Release Nut #5 MT	4399-501-00048
50	Release Nut #6 MT	4399-501-00068
52	O-Ring	9902-100-99053
60	O-Ring	9902-100-94363

MT=Morse Taper CH=Chuck Mount FL=Flange Mount



4300

TOOL SERIES 4400
QUICK CHANGE HYDRAULIC TYPE
1.93-2.91 GRIPPING RANGE

4400 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
145	#5 Morse Taper	100 Lbs	160 Lbs
146	#6 Morse Taper	100 Lbs	160 Lbs
200	Straight Shank	100 Lbs	160 Lbs
300	Flange Mount	100 Lbs	160 Lbs
391	Flange H.D. Spring	165 Lbs	220 Lbs
392	Flange H.D. Spring	420 Lbs	560 Lbs
393	Flange H.D. Spring	825 Lbs	1000 Lbs
400	Chuck Mount	100 Lbs	160 Lbs
491	Chuck H.D. Spring	165 Lbs	220 Lbs
492	Chuck H.D. Spring	420 Lbs	560 Lbs
493	Chuck H.D. Spring	825 Lbs	1000 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
70	.393- .590	4364-152-00070
71	.590- .787	4364-152-00071
72	.787- .984	4364-152-00072
73	.984- 1.181	4364-152-00073
74	1.181- 1.378	4364-152-00074
75	1.378- 1.575	4364-152-00075
76	1.575- 1.772	4364-152-00076
77	1.772- 1.969	4364-152-00077
78	1.969- 2.166	4364-152-00078
79	2.166- 2.363	4364-152-00079

SPARE DRIVE PINS (6 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4363-121-11500	4363-121-25500
4363-121-12500	4363-121-13500
4363-121-16500	4363-121-16500
4363-121-14500	4363-121-14500

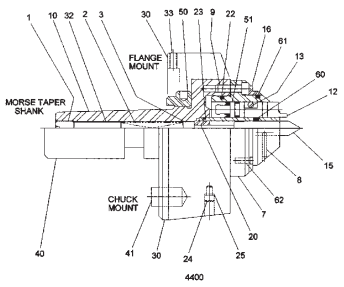
DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
1.93	Offset	1.94	3.82	115	255
2.24	Half Offset	2.25	4.44	125	235
2.51	Central	2.52	5.00	165	265
2.91	Full Width	2.92	5.78	145	245

Component Parts

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug MT,CH	4399-012-02006
2	Comp Spring MT, FL, CH	9903-003-00113
3	Spring Pin MT, FL, CH	4364-032-00000
7	Carrier Body	4400-073-00000
8	CTR PT Retainer	4364-085-00000
9	Cap Screw	9904-001-99007
10	#5 MT Shank	4364-105-08500
10	#6 MT Shank	4364-106-08500
12	Drive Pin	See Table
13	Drive Pin Retainer	4300-132-00000
15	Center Point	See Table
16	Nose Cap	4400-161-00000
18	Piston Assembly	4264-182-00000
20	Bushing	4364-062-00000
22	O-Ring	9902-100-99048
23	O-Ring	9902-100-99047
24	Screw	9904-001-99038
25	Copper Washer	9910-016-99002
30	Chuck Adapter	4364-400-00000
30	Flange Adapter FL	4364-300-00000
32	Dowel Pin #6 MT	9908-010-99011

DET. NO.	COMPONENT	PART NUMBER
32	Dowel Pin #5 MT	9908-010-99012
33	Soc Set Screw CH	9904-030-32004
40	Flange Sleeve CH	4399-401-00000
40	Flange Sleeve FL	4364-401-00000
41	Spiral Pin CH	9908-010-90033
50	Release Nut #5 MT	4399-501-00048
50	Release Nut #6 MT	4399-501-00068
60	O-Ring Small	9902-100-94264
61	O-Ring Large	9902-100-94364
62	SHCS	9904-001-94364

MT=Morse Taper CH=Chuck Mount FL=Flange Mount



TOOL SERIES 4266
OIL HYDRAULIC TYPE
3.24-4.33 GRIPPING RANGE

4266 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
146	#6 Morse Taper	270 Lbs	375 Lbs
300	Flange Mount	270 Lbs	375 Lbs
391	Flange H.D. Spring	440 Lbs	550 Lbs
392	Flange H.D. Spring	735 Lbs	920 Lbs
393	Flange H.D. Spring	1185 Lbs	1470 Lbs
394	Flange H.D. Spring	2350 Lbs	2940 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
50	.472- .787	4399-152-00050
51	.787- 1.102	4399-152-00051
52	1.102- 1.417	4399-152-00052
53	1.417- 1.732	4399-152-00053
54	1.732- 2.047	4399-153-00054
55	2.047- 2.362	4399-153-00055
56	2.362- 2.677	4399-153-00056
57	2.677- 2.992	4399-153-00057
58	2.992- 3.307	4399-153-00058
59	3.307- 3.622	4399-153-00059

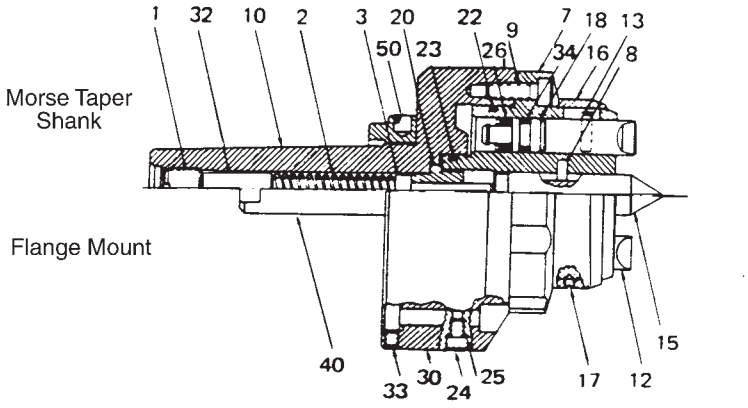
SPARE DRIVE PINS (8 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4399-121-11600	4399-121-25600
4399-121-12600	4399-121-13600
4399-121-16600	4399-121-16600
4399-121-14600	4399-121-14600

DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
3.24	Offset	3.25	4.85	116	256
3.54	Half Offset	3.55	5.31	126	236
3.86	Central	3.87	5.79	166	266
4.33	Full Width	4.34	6.49	146	246

Component Parts

OIL HYDRAULIC TYPE DRIVERS

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug	4399-012-03011
2	Comp Spring	9903-003-00114
3	Spring Pin	4366-032-00000
7	Carrier Body	4366-073-00000
8	CTR PT Retainer	4366-082-00000
9	Cap Screw	9904-001-99007
10	#6 MT Shank	4366-106-12200
12	Drive Pin	See Table
13	Drive Pin Retainer	4399-132-02507
15	Center Point	See Table
16	Nose Cap	4366-161-00000
17	Set Screw	9904-034-99003
18	Piston	4368-182-00000
22	O-Ring - Large	9902-100-99043
23	O-Ring - Small	9902-100-99028
24	Cap Screw	9904-001-99038
25	Copper Washer	9910-016-99002
26	Cup Seal	9902-100-00012
30	Flange Adapter	4366-300-00000
33	Set Screw	9904-030-32004
34	Square Ring	9902-100-00013
40	Flange Sleeve	4366-401-00000
50	Release Nut	4399-501-00068



TOOL SERIES 4268
OIL HYDRAULIC TYPE
4.66-5.74 GRIPPING RANGE

4268 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
300	Flange Mount	460 Lbs	600 Lbs
391	Flange H.D. Spring	785 Lbs	900 Lbs
392	Flange H.D. Spring	1200 Lbs	1420 Lbs
393	Flange H.D. Spring	1680 Lbs	1920 Lbs
394	Flange H.D. Spring	2080 Lbs	2500 Lbs
395	Flange H.D. Spring	2560 Lbs	3000 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
60	.629- .984	4399-152-00060
61	.984- 1.338	4399-152-00061
62	1.338- 1.692	4399-152-00062
63	1.692- 2.047	4399-152-00063
64	2.047- 2.401	4399-152-00064
65	2.401- 2.755	4399-152-00065
66	2.755- 3.110	4399-152-00066
67	3.110- 3.464	4399-152-00067
68	3.464- 3.818	4399-152-00068
69	3.818- 4.173	4399-152-00069

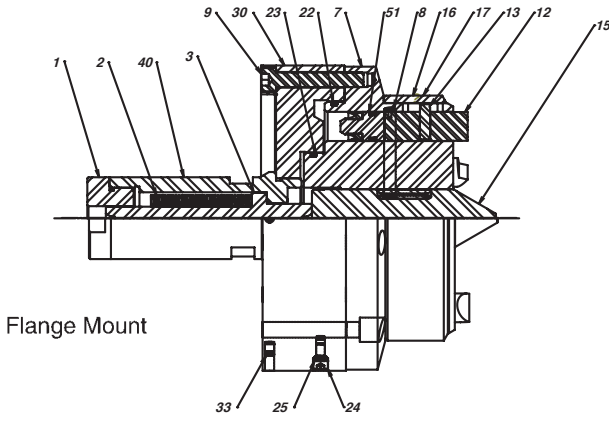
SPARE DRIVE PINS (10 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4399-121-11600	4399-121-25600
4399-121-12600	4399-121-13600
4399-121-16600	4399-121-16600
4399-121-14600	4399-121-14600

DRIVE PINS					
GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
		MIN.	MAX.	RH	LH
4.66	Offset	4.67	6.96	116	256
4.96	Half Offset	4.97	7.42	126	236
5.27	Central	5.28	7.90	166	266
5.74	Full Width	5.75	8.59	146	246

Component Parts

OIL HYDRAULIC TYPE DRIVERS

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug	4368-011-00000
2	Spring	9903-002-99001
3	Spring Pin	4368-031-00000
7	Carrier Body	4368-073-00000
8	CTR PT Retainer	4368-082-00000
9	Cap Screw	9904-001-99041
12	Drive Pin	See Table
13	Drive Pin Retainer	4399-132-02507
15	Center Point	See Table
16	Nose Cap	4368-161-00000
17	Screw	9904-034-99007
18	Piston	4368-182-00000
22	O-Ring - Large	9902-100-99037
23	O-Ring - Small	9902-100-99016
24	Screw	9904-001-99024
25	Copper Washer	9910-016-99002
26	Cup Seal	9902-100-00012
30	Flange Adapter	4368-300-00000
33	Soc Screw	9904-030-32004
34	Square Ring	9902-100-00013
40	Flange Sleeve	4368-401-00000



Flange Mount

TOOL SERIES 4255
DUAL RANGE OIL HYDRAULIC TYPE
1.73-4.61 GRIPPING RANGE

4255 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
300	Flange Mount	400 Lbs	500 Lbs
391	Flange H.D. Spring	845 Lbs	1000 Lbs
392	Flange H.D. Spring	1350 Lbs	1660 Lbs
393	Flange H.D. Spring	1700 Lbs	2080 Lbs

Same drive pins are used for low or high range tool arrangement.

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
70	.393- .590	4399-152-00070
71	.590- .787	4399-152-00071
72	.787- .984	4399-152-00072
73	.984- 1.181	4399-152-00073
74	1.181- 1.378	4399-152-00074
75	1.378- 1.575	4399-153-00075
76	1.575- 1.772	4399-153-00076
77	1.772- 1.969	4399-153-00077
78	1.969- 2.166	4399-153-00078
79	2.166- 2.363	4399-153-00079

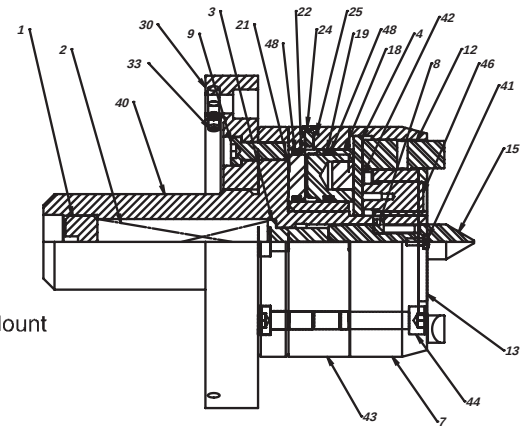
SPARE DRIVE PINS (6 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4399-123-11500	4399-123-25500
4399-123-12500	4399-123-13500
4399-123-16500	4399-123-16500
4399-123-14500	4399-123-14500

DRIVE PINS						
RANGE	GRIPPING DIA.	PIN STYLE	STOCK SIZE		ORDER CODE	
			MIN.	MAX.	RH	LH
Low	1.73	Offset	1.74	2.59	115	255
	2.05	Half Offset	2.06	3.07	125	235
	2.31	Central	2.32	3.46	165	265
	2.72	Full Width	2.73	4.08	145	245
High	3.62	Offset	3.63	5.43	115	255
	3.94	Half Offset	3.95	5.91	125	235
	4.20	Central	4.21	6.30	165	265
	4.61	Full Width	4.62	6.91	145	245

Component Parts

DUAL RANGE OIL HYDRAULIC TYPE DRIVERS

DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug	4399-012-03011
2	Spring	9903-003-00118
3	Spring Pin	4399-032-03516
4	Retainer Pin	9908-010-99001
7	Carrier Body	4399-075-13230
8	CTR PT Retainer	4399-082-00806
9	Cap Screw	9904-004-99007
12	Drive Pin	See Table
13	Drive Pin Retainer	4399-134-08468
15	Center Point	See Table
18	Piston	4399-183-02530
19	O-Ring	9902-102-00042
21	Sealing Ring	4399-212-00930
22	O-Ring	9902-102-00042
24	Screw	9904-004-99001
25	Copper Washer	9910-016-99003
30	Flange Adapter	4399-300-14060
33	Soc Screw	9904-030-32004
40	Flange Sleeve	4399-402-13255
41	Screw	9904-004-99002
42	Press. Pin Ret.	4399-421-01916
43	Cylinder Body	4399-431-13235
44	Cap Screw	9904-001-99010
46	Blind Pin	4399-461-03517
48	Back Up Ring	9902-111-06002



Flange Mount

TOOL SERIES 4258
DUAL RANGE OIL HYDRAULIC TYPE
5.59-9.05 GRIPPING RANGE

4258 — ___ ___ ___ — ___ ___ ___ ___ ___

DRIVE SHANK			
ORDER CODE	SHANK STYLE	SPRING LOAD	MAX. PART WT.
300	Flange Mount	1000 Lbs	1500 Lbs
391	Flange H.D. Spring	2935 Lbs	3500 Lbs
392	Flange H.D. Spring	6600 Lbs	8400 Lbs

TOOL ORDER CODE	CENTER POINTS	
	CENTER HOLE DIA. RANGE	SPARE PART ORDERING CODE
80	.785- 1.377	4399-152-00080
81	1.377- 1.969	4399-152-00081
82	1.969- 2.561	4399-152-00082

Same drive pins are used for low or high range tool arrangement.

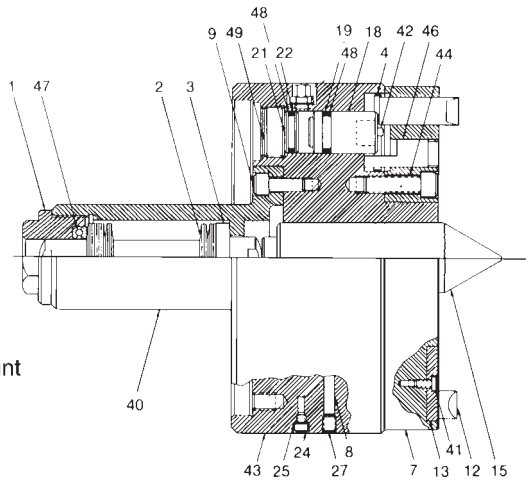
SPARE DRIVE PINS (12 Per Tool)	
ORDERING CODE	
RIGHT HAND	LEFT HAND
4399-124-11600	4399-124-25600
4399-124-12600	4399-124-13600
4399-124-16600	4399-124-16600
4399-124-14600	4399-124-14600

DRIVE PINS						
GRIPPING RANGE	DIA.	PIN STYLE	STOCK SIZE MIN.	STOCK SIZE MAX.	ORDER CODE RH	ORDER CODE LH
Low	5.59	Offset	5.60	8.38	116	256
	5.90	Half Offset	5.91	8.38	126	236
	6.22	Central	6.23	9.33	166	266
	6.69	Full Width	6.70	10.03	146	246
High	7.96	Offset	7.97	11.94	116	256
	8.27	Half Offset	8.28	11.92	126	236
	8.58	Central	8.59	12.87	166	266
	9.05	Full Width	9.06	13.57	146	246

Component Parts

DUAL RANGE OIL HYDRAULIC TYPE DRIVERS

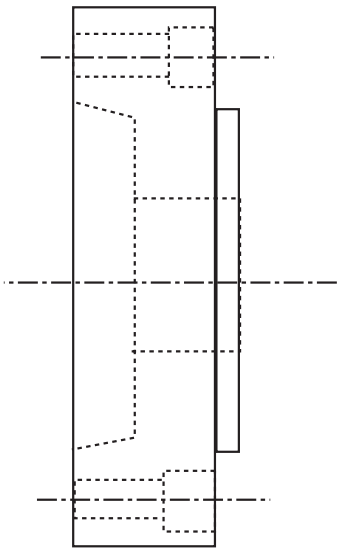
DET. NO.	COMPONENT	PART NUMBER
1	Screw Plug	4368-013-06025
2	Spring	9903-002-99002
3	Spring Pin	4299-033-12515
4	Pressure Pin	9908-010-99002
5	Drive Pin	See Table
7	Carrier Body	4399-075-24680
8	CTR PT Retainer	4399-082-09008
9	Cap Screw	9904-001-99009
13	Drive Pin Retainer	4399-135-05414
14	Cylinder Pin	4399-141-01717
15	Center Point	See Table
18	Piston	4399-183-05230
19	O-Ring	9902-102-00042
21	Sealing Ring	4399-212-00930
22	O-Ring	9902-102-00042
24	Screw	9904-004-99004
25	Copper Washer	9910-016-99002
27	Screw	9904-036-99003
40	Flange Sleeve	4399-402-13075
41	Cap Screw	9904-004-99004
42	Press. Pin Retainer	4399-421-01916
43	Cylinder Body	4399-432-25050
44	Cap Screw	9904-001-99013
46	Blind Pin	4399-462-05320
47	Thrust Bearing	9901-025-05006
48	Back Up Ring	9902-111-06002
49	Screw Plug	9904-083-99001



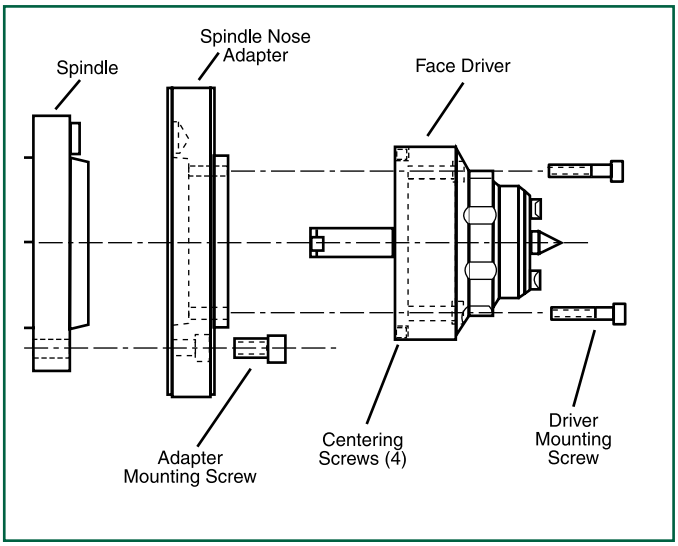
Flange Mount

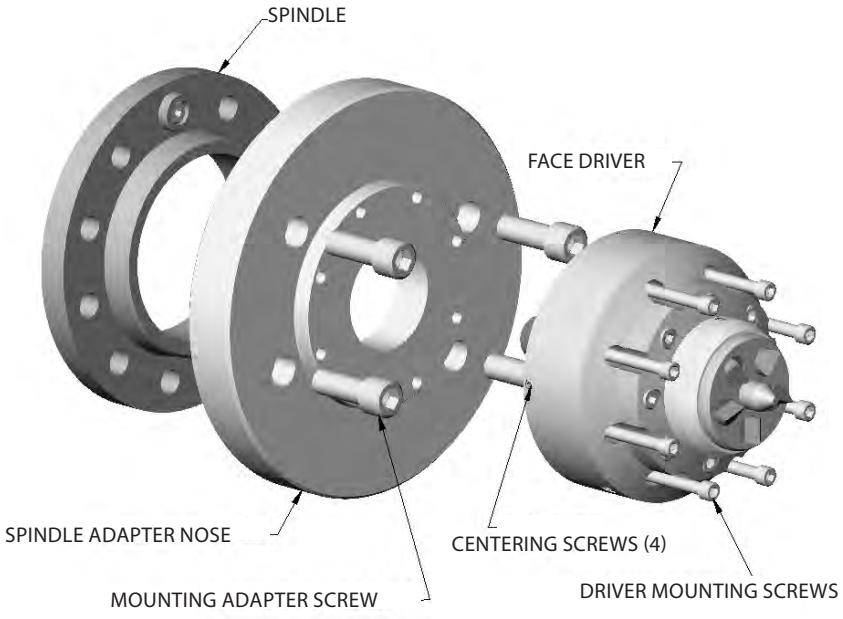
PART NUMBER	FACE DRIVER	SPINDLE SIZE
4362-314-00000	4000, 4100, 4200	A2-5″
4362-315-00000	4000, 4100, 4200	A2-6″
4362-316-00000	4000, 4100, 4200	A2-8″
4362-317-00000	4000, 4100, 4200	A2-11″
4364-315-00000	4400 4300	A2-6″
4364-316-00000	4400 4300	A2-8″
4364-317-00000	4400 4300	A2-11″
4366-315-00000	4266	A2-6″
4366-316-00000	4266	A2-8″
4366-317-00000	4266	A2-11″
4366-318-00000	4266	A2-15″
4368-315-00000	4268	A2-6″
4368-316-00000	4268	A2-8″
4368-317-00000	4268	A2-11″
4368-318-00000	4268	A2-15″
4355-316-00000	4255	A2-8″
4355-317-00000	4255	A2-11″
4355-318-00000	4255	A2-15″
4358-316-00000	4258	A2-8″
4358-317-00000	4258	A2-11″
4358-318-00000	4258	A2-15″

Spindle Adapters are used in conjunction with flange mount type face drivers (-300) series. These adapters mount directly to the American Standard Spindle Taper and provide a male pilot on the opposite side to allow the face driver to be trued into position for greater accuracy.



Spindle Nose Adapter





Operating Information

Installing Face Driver on Machine

Madison Face Drivers are available in either morse taper shank, flange-mount styles or chuck mounted styles. Generally speaking, taper shanks are used for lighter work loads, while flange-mount construction is used on the larger size drivers (starting with Tool Series 4200) and is recommended for heavy work loads.

In mounting the face driver, accuracy and rigidity are of prime importance. While tapered adapters may be used when the headstock spindle has a larger taper than the morse taper shank driver, they should only be used as a last resort. Whenever possible, it is best to mount the drivers directly in the machine spindle.

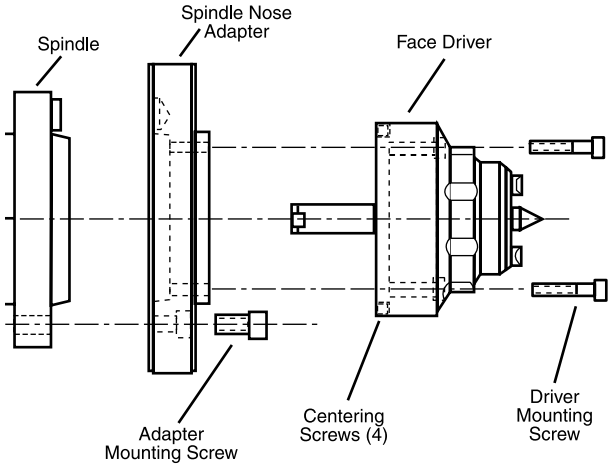


Fig. 1

Face Drivers

INSTRUCTIONS FOR OPERATION,
SET-UP, CARE AND MAINTENANCE

Flange-mount drivers are usually mounted on the machine spindle by means of a spindle nose adapter. (See Fig. 1). These adapters can be supplied by Madison to fit your particular machine spindle and are quoted on an individual basis. When requesting a quotation, please furnish us with complete machine spindle specifications.

To save setup time and to avoid removing the chuck, it is possible to clamp the driver directly in the chuck.

Before using the driver, make sure that the drive pins are oriented with respect to driver rotation. Correct pin orientation for both right hand (normal engine lathe spindle rotation) and left hand rotation is shown in Fig. 2 and 3.

After the driver has been mounted on the machine, it should be checked for runout. In the case of morse taper style drivers, the maximum radial runout will not exceed .002. Flange-mount drivers have four centering set screws located at 90˚ intervals around the periphery of the flange drive shank. These screws permit radial adjustment of this style driver to virtually eliminate runout.

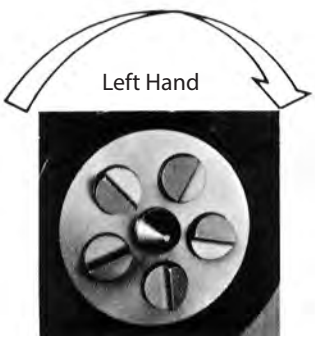


Fig. 2

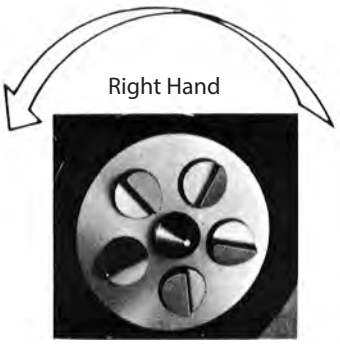


Fig. 3

Assembly Instructions

Drive Pins:

To replace drive pins: Loosen cap retaining screw (s) and remove nose cap from carrier body. Withdraw drive pin retainers and remove drive pins. When replacing drive pins, be certain the chisel point is oriented correctly for proper drive rotation (right hand or left hand). On Tool Series 4255 and 4258 drive pins are retained by a plate and socket-head cap screws in the face of the tool.

Center Point:

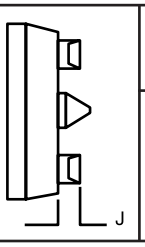
On all face drivers, the center point is secured by a retaining pin engaging the center point keyway. On all face drivers, except Tool Series 4255 and 4258, the center point is removed by taking the nose cap and extracting the center point retaining pin. On the 4258 driver, the center point retaining pin is located beneath the retaining pin screw on the cylinder body. To take out the pin on the 4258 driver, the retaining pin screw must be removed, allowing access to the pin. On the 4255 driver, remove the center point by first loosening the carrier body clamp screws, then remove the carrier body, exposing the center point retaining pin, which can be easily extracted.

Tool Disassembly:

To separate the carrier body from the shank assembly, remove the center point, screw plug and compression spring assembly. Remove inlet screw (when applicable). Hold the face driver in a horizontal position on a bench and insert a brass rod (slightly smaller in diameter than the center point) in the bore for the center point. The rod will bottom against the drive shank and gentle tapping will separate the carrier body from the shank assembly.

Hydraulic Adjustment:

To add or to change hydraulic oil, remove the inlet screw and washer which seal the hydraulic chamber. With the pistons and drive pins in full forward position, fill the chamber to overflowing with hydraulic oil. Use SAE 50 grade oil. Allow sufficient time for all air bubbles to be displaced. Replace the inlet screw. Hold the face driver in an arbor press with the drive pins against a flat plate. Displace excess oil from the chamber by compressing the drive pins to the appropriate dimension "J" in dimension chart (See chart below). Tighten the inlet screw and washer to seal the chamber.



TOOL SERIES	J	TOOL SERIES	J
4000	.12	4266	.47
4100	.19	4268	.39
4200	.25	4255	.39
4300	.34	4258	.55
4400	.34		

SET GAGES FOR HYDRAULIC DRIVE PIN SET UP

Series	Part Number
4200	CT-2450
4300	CT-2451
4400	CT-2452
4266	CT-2453

Please call Madison for Price and Availability.

Care and Maintenance

Madison face drivers are rugged and trouble-free but, like any precision-made tool, they should not be subjected to undue abuse. Chips, dirt and other foreign matter cannot easily penetrate the face driver because of close manufacturing tolerances maintained in the design; thus, only infrequent disassembly for cleaning is required.

Regrinding Drive Pins and Center Points

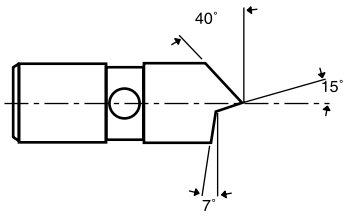
Drive pins can be resharpened but should be reground and maintained in sets. A regrind life of approximately 0.100" in relation to the original length of each pin is available. Care should be exercised to maintain original angles (see illustration).

After repeated regrinding, check the center point for additional retraction after the work has contacted the driving pins to ensure proper face driver function. This can be done by marking the center point projection at the face driver when work is clamped. Upon removing the work, depress the center point to see whether the mark disappears inside the face driver. If so, the center point has adequate travel. Normally, the center point will require only a light, clean-up grind and may be removed from the driver for this operation. To obtain best possible concentricity when using morse taper shank drivers, the center point may be ground in the tool, locating from the drive shank.

We offer regrind service for drive pins and center points.

Checking Face Driver Performance

There are two types of compensating mediums; elastomer and oil. Heavy duty oil hydraulic type face drivers should be inspected periodically to ensure against leakage which would detract from the efficiency of the driver. Standard elastomer type drivers should be inspected occasionally to determine any deterioration in the elastomer ring. Should the oil hydraulic type driver fail to function due to a lack of oil, the drive pins will appear to be against a positive stop. To check for this condition, actuate the face driver against a square workpiece in an arbor press to position drive pins to dimension "J".



Lubrication

To prevent rust and to increase tool life, the center point and drive pins should be periodically removed from the carrier body and coated with lubricant.

Tailstock Considerations

For best results, the machine should be equipped with a heavy duty, live center tailstock, either solid or the spring-loaded, ball-bearing type. The latter is preferable, because it will compensate for any expansion due to heat and will allow smooth, free rotation of the workpiece. If a power-operated tailstock (hydraulic or pneumatic) is used, it should include a means of throttling the actuating-mechanism to prevent a "hammer blow" effect when the workpiece face contacts the drive pins of the driver; otherwise, the pins could be damaged.

Center Hole Size for Proper Face Driver Function

While center hole diameter is not critical, it can adversely affect face driver operation if not taken into consideration in the selection of the proper center point for a given application.

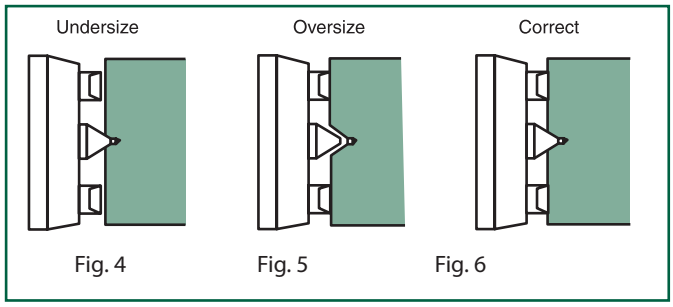


Fig. 4 Fig. 5 Fig. 6

In the case of an undersize center hole, the center point cannot retract enough to allow the pins to penetrate to the required depth. (See Fig. 4). In this case, pins cannot engage the workpiece face and cutting cannot take place. Conversely, if the center hole is oversize, the center point cannot locate the part properly before the drive pins contact the face of the workpiece (See Fig. 5). As a result, the workpiece will be machined eccentrically with respect to other center hole. The correct size center hole (Fig. 6) allows centering and proper pin penetration to take place. For proper face driver function, check the center hole diameter of your workpiece to be sure it falls within the required limits for the center point being used. (See chart below).

TOOL SERIES	CENTER HOLE DIA. LIMITS	
	MIN.	MAX.**
4210	.118	.197
4211	.118	.197
4212	.197	.275
4213	.275	.393
4214	.393	.511
4000	.118	.197
4100	.118	.197
4200	.275	.393
4300	.393	.511
4400	.393	.590
4266	.472	.787
4268	.629	.984
4255	.393	.590
4258	.785	1.377

Machining The Workpiece

Workpiece Hardness — Generally speaking there will be no problem with drive pin penetration at normal tailstock force if the workpiece hardness does not exceed 36 Rockwell "C". Above 36 Rockwell "C", tailstock forces must be increased and the cutting section area reduced because of the increased torque encountered. For most turning operations, the practical upper limit of workpiece hardness for satisfactory use of face drivers is about 40-42 Rockwell "C".

Since lower torques are involved in operations such as grinding or hobbing, it is often possible to achieve satisfactory pin penetration on workpieces having a hardness greater than 42 Rockwell "C"; however, we suggest you contact Madison for specific recommendations.

Cutting Recommendations — for proper face driver operation involving only one tool, the tailstock force applied should be based on the cut requiring the most torque. Tailstock load capacity of each driver is listed in the chart below.

For optimum driver life and performance, we do not recommend exceeding the rating shown.

In turning applications involving lathes with a manually-operated tailstock, the initial tailstock force is reduced during the final pin penetration (which takes place when the cutting tool contacts the workpiece). As soon as the cut starts, the operator should retighten the tailstock to maintain the required force. On lathes equipped with a power-operated tailstock, the required tailstock force is automatically maintained.

When using multiple cutting tools, the tool slide feeding toward the headstock should be engaged first. This will firmly embed the drive pins in the workpiece. The distance from the driving face to the headstock will remain identical for all parts within ±0.002 when constant tailstock force is applied. The positioning or work does not depend on the diameter of the center hole because of the spring-loaded center point. Even when faces are uneven (i.e., sawed billets) the median position of the pins will remain constant from piece to piece.

With a mechanical tailstock, the average tightening with one hand exerts sufficient force to build up about 1,700 pounds of pressure. On a power-operated tailstock, force equals the area of the piston in square inches times the input pressure into the cylinder in pounds per square inch.

For longer tool life and best results we recommend that you do not exceed the following tailstock force capacities for face drivers.

TAILSTOCK FORCE (LBS)*				
TOOL SERIES	OFFSET DRIVE PIN	CENTRAL DRIVE PIN	HALF WIDTH OFFSET DRIVE PIN	FULL WIDTH DRIVE PIN
4210	420	500	600	1,150
4211	450	510	750	1,400
4212	750	825	1,050	2,000
4213	800	1,250	1,600	3,114
4214	1,100	1,850	2,300	4,500
4000	420	500	600	1,150
4100	500	700	850	1,600
4200	885	1,500	2,000	3,800
4300	1,350	2,000	2,500	5,000
4400	1,600	2,400	3,000	5,900
4266	2,850	3,800	4,700	9,300
4268	3,550	4,725	5,880	11,640
4255	1,450	2,400	3,000	5,950
4258	4,250	5,700	7,100	14,000

* For tailstock force in excess of these values consult Madison.

** The center hole limits listed in this column are for standard center points with complete face drivers in each of the tool series. If your workpiece has a center hole diameter other than the limits shown, refer to catalog which gives a complete listing of non-stock, standard center points, and the center hole diameter range each covers.

FACE DRIVER FORCE GAGE NOW AVAILABLE

Part No. 4301-000-90080

CATALOG LIST PRICE	RENTAL AGREEMENT: (5) BUSINESS DAY RENTAL PRICE
$995.00	$150.00

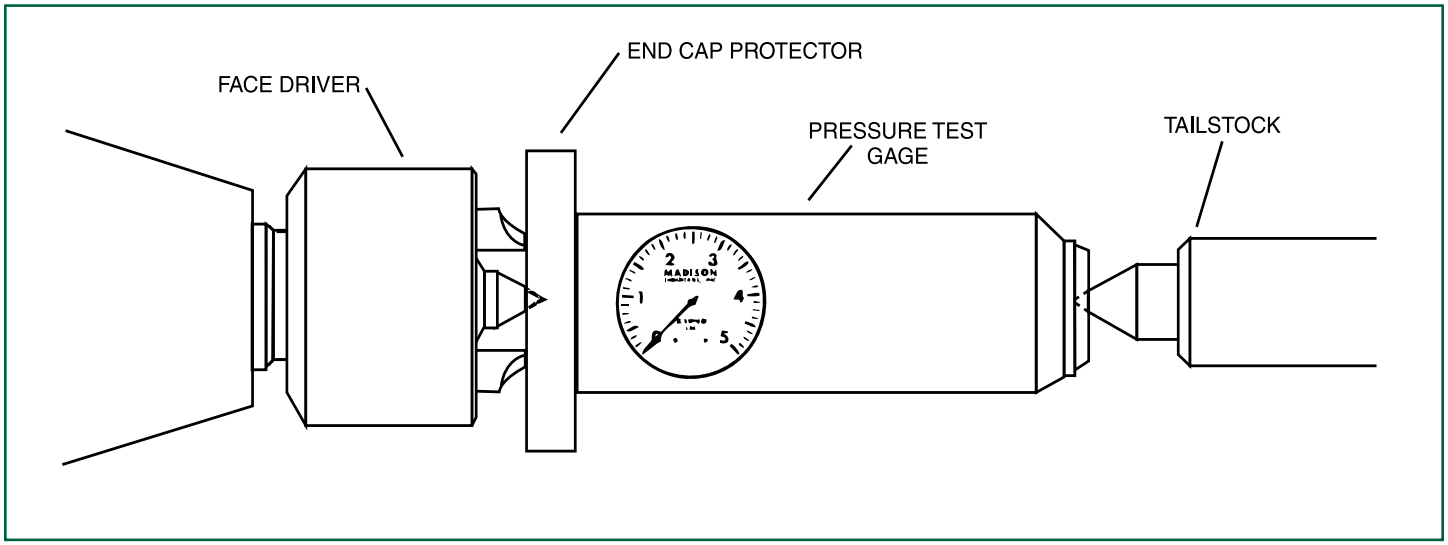
The successful operation of the Madison Face Driving Center requires sufficient tailstock force to achieve adequate penetration of the drive pins to provide workpiece driving torque.

With mechanical tailstocks, the average man, tightening with one hand, exerts sufficient power to build up about 1,700 pounds of tailstock force. On the other hand, with a power-operated tailstock, the force equals the area of the piston in square inches times the input pressure into the cylinder in pounds per square inch.

Madison has developed a force test gage (as seen in picture above) which eliminates the guesswork and calculations needed to obtain a correct tailstock force. As a result, tailstock force up to 6,000 pounds can be read directly from the gage, which is placed between the driver and the tailstock. In addition to being used with the Madison face driver, the force gage may also be used separately to measure force directly from the tailstock.

To lengthen the life of the gage, an end cap protector is provided (as seen in the drawing). It is placed on the end which is subjected to drive pin penetration and may be replaced when necessary.

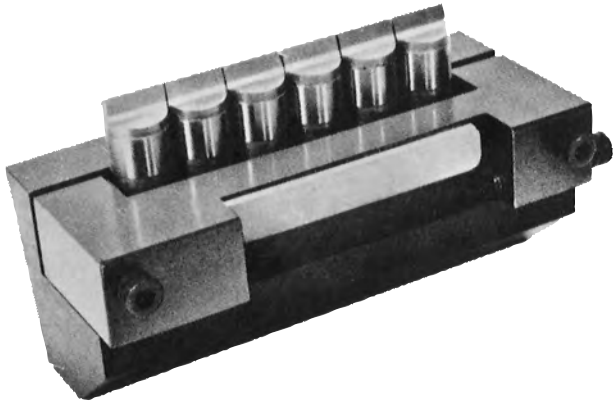
These force test gages are now available from Madison. Contact us for price and delivery details.

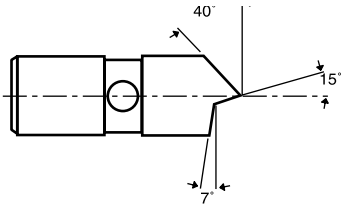


DRIVE PIN GRINDING FIXTURE

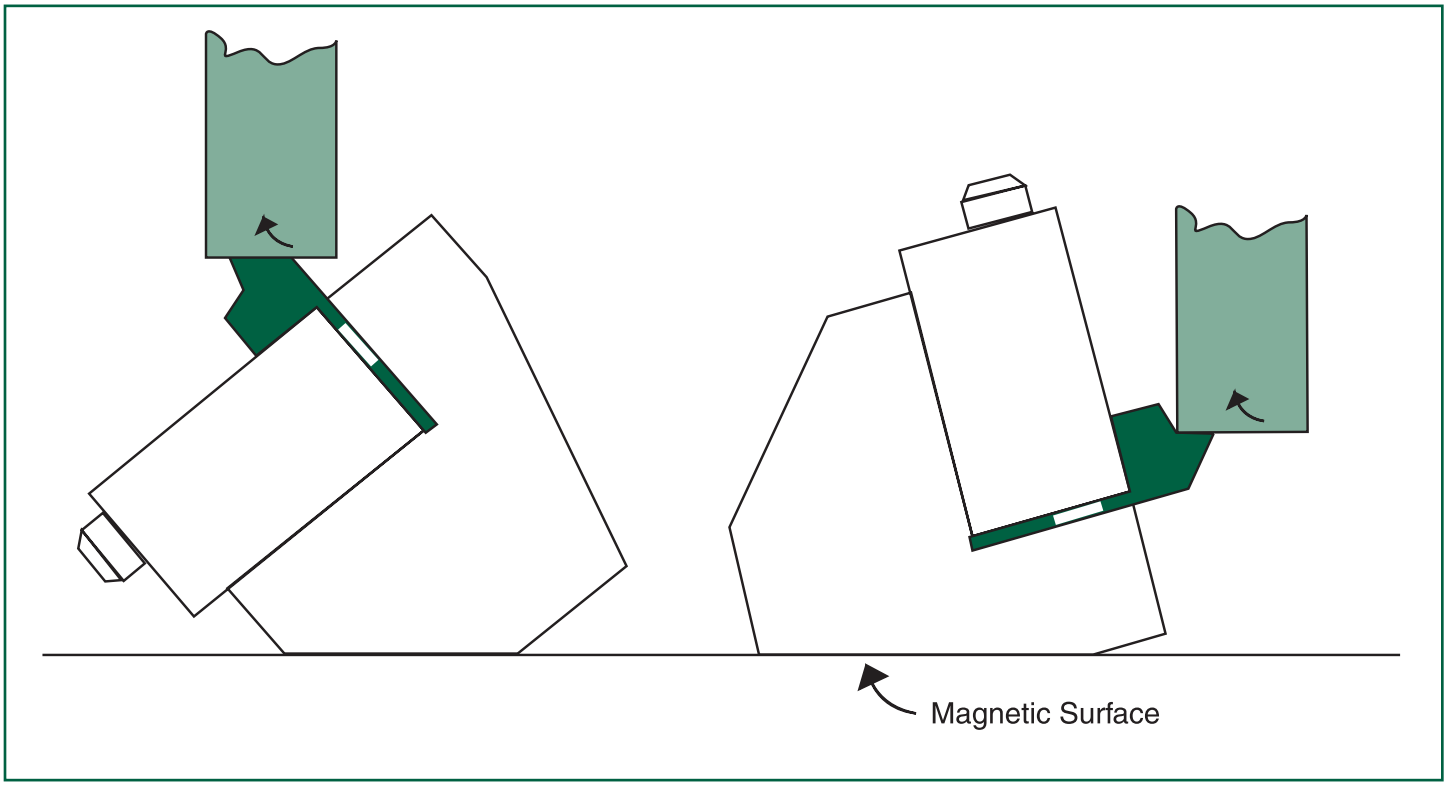
This accessory is especially designed to produce the original factory ground angles in a single setup. Only one fixture accommodates all pin sizes. Used on a surface grinder with a magnetic chuck, all pins for a driver can be ground simultaneously in a few passes of the grinding wheel. Regrind life of the pins is further increased since excessive or needless grinding is eliminated.

To operate the fixture, simply insert the pins on the retaining bar and load into the fixture. Bring the front clamp against the pins, and tighten the cap screws. Two precision ground angles on the fixture automatically position the pins in the correct orientation for grinding. Drive pins can be resharpened but should be reground and maintained in sets. A regrind life of approximately 0.100" in relation to the original length of each pin is available.





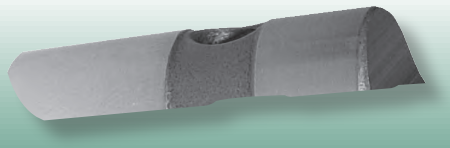
DRIVE PIN GRINDING FEATURES	
All Sizes	8042-100-00000
4210-4213, 4000, 4100	8042-200-00000
4214, 4200 and Larger	8042-300-00000
(Prices on application)	



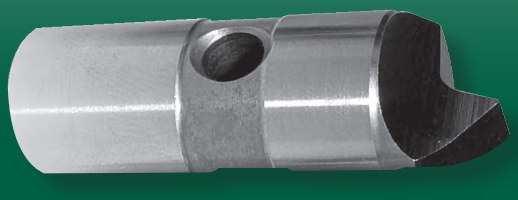
Max-Life®
Drive Pins

The Longest Lasting Drive Pins on the Market

Call Madison Face Driver or your Local Madison Sales Representative today for more information on our Max-Life® Drive Pins

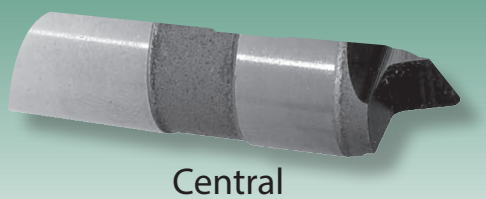


Offset



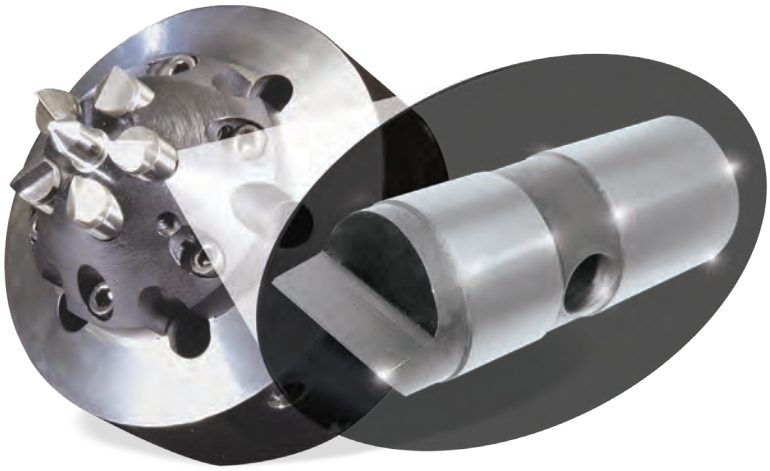
Half Offset

Full Width



Central

Interchangeable with standard pins



The Max-Life® Drive Pins, developed by Madison Face Driver, are engineered and manufactured using an all new concept that is unique to Madison drive pins. They are proven to be the longest lasting drive pins on the market today.

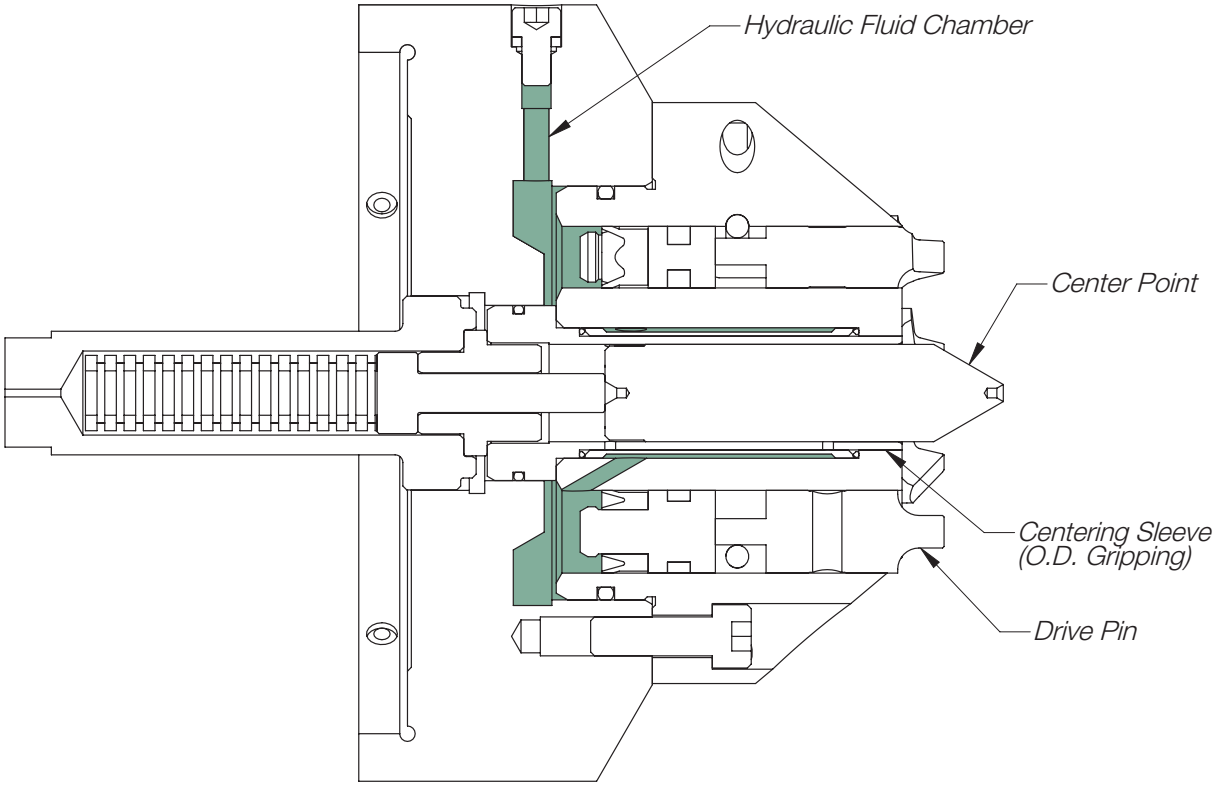
Tested by a leading automotive manufacturer, Max-Life® Drive Pins have performed with a life cycle that is 2 to 4 times greater than standard drive pins. The increased life span results in using fewer pins and saving costly set-up time making Max-Life® the most cost effective choice in drive pins available.

The Max-Life® Drive Pins are interchangeable with standard drive pins and are manufactured to the highest quality standards for complete customer satisfaction.

Check out our web site at: www.speedgrip.com or call today for more information on the new revolutionary Max-Life® Drive Pins.

- Durable
- Cost effective
- Saves set-up time
- Cuts pin replacements
- Interchangeable with standard pins

.0002 T.I.R. with positive lateral positioning



The convenenience of a face driver with the accuracy of a hydraulic arbor

Features

Accuracy

The precision ground hydraulic shell holds the center point on centerline within .0002" T.I.R.
Lateral positioning of the part is constant since the center point is locked into position.

Efficiency

Since part positioning is done by the center point, drive pin life is extended.
Drive pins and center points are quickly changed from the front of the assembly.
The new Hydra-Drive requires less tailstock pressure to maintain engagement.

Quality

This new face driver combines the quality and innovation of our Madison Face Driver with Cameron hydraulic chucks and arbors.

Flexibility

Adapts to American Standard, Morse Taper, and jaw chuck mountings.
Ability to handle greater side loads during hobbing or grinding applications.

■ 3 sizes to handle a range of part diameters from 1.000" to 6.000" diameter.

- HD 62 from 1.000" to 3.600" Diameter
- HD 63 from 1.400" to 4.800" Diameter
- HD 64 from 1.900" to 6.000" Diameter

■ All Drivers use standard quick change drive pins

SOLID CARBIDE PIN STYLE

FACE DRIVER SERIES	FULL WIDTH (RH)	FULL WIDTH (LH)	HALF OFFSET (RH)	HALF OFFSET (LH)
4100	4399-125-14200	4399-125-24200	4399-125-12200	4399-125-13200

CARBIDE INSERT STYLE

FACE DRIVER SERIES	RECEIVER PIN (RH/LH)	RECEIVER PIN (LH)	CARBIDE INSERT
4214,4200, & HD-62	4399-125-90002	4399-125-90001	4399-125-00000
4300, HD-63, 4400 & HD-64	4399-125-90003	4399-125-90003	4399-125-00000
4266	4399-125-90004	4399-125-90004	4399-125-00000

The Solid Carbide Drive Pins and Insert Style Carbide Drive Pins can be used when the part material exceeds the hardness recommended for our standard high speed steel drive pins. Using an impact resistant carbide these drive pins are not only hard, but tough enough to tackle your most difficult face driving applications.

The Carbide Drive Pins fit your existing Madison Face Driver assembly.

Call MADISON FACE DRIVER or YOUR LOCAL MADISON REPRESENTATIVE today for more information on our Carbide Drive Pins.

TURNING APPLICATION 48-50 R/C
GRINDING APPLICATION 60-62 R/C

Face Driver Information Request

The following technical information is needed for proper selection of your face driver requirements. Please complete and fax this form to Madison Face Driver @ 574-294-2465

Mounting Data

Chuck Mount (In Jaws): _____ Morse Taper Size: _____

Flange Mount: _____ Spindle Size (If flange mounting): _____

Spindle Rotation: (Viewed from operators position) Clockwise ☐ Counter-Clockwise ☐ Both ☐

Workpiece Data

Part Description: _____

Diameter Rough: _____ Diameter Finished: _____ Rough Weight: _____

Overall Length: _____ Material: _____

Material Hardness: RC: _____ BHN: _____

Required Concentricity: _____

Center Hole Diameter: _____

Machine and Machining Data

Machine Type: _____ Machine Manufacturer: _____

Tool Holder: Right ☐ Left ☐

Max Depth Of Cut: _____ RPM/SFM: _____

Simultaneous Operations: Yes ☐ No ☐

Maximum Tailstock Force (lbs): _____

Please note: Part drawings and operation/process information is helpful in quoting.

Madison Face Driver: A Speedgrip Company
2000 Industrial Parkway
Elkhart, IN 46515
Phone: 574-294-1506
Fax: 574-294-2465

SPEEDGRIP CHUCK CO.

SPEEDGRIPCHUCK:Internalandexternalgrippingcolletchucks,diaphragm chucks, finger chucks, and between center mandrels.

CAMERON:Internalandexternalhydraulicchucksandarborswithcollet chucks from our Sabertooth line.

MADISONFACEDRIVER:Standarddriversandpinsalongwithspecialdesign facedriversandourHydra-Drivelineforextremeaccuracyrequirements.

Ourworkholdingequipmentisveryversatileandidealforturning,drillingandmillingoperations,gear cuttingandfinishing,balancing,inspectionequipment,andmanyusesonfixturesandtombstones.

Our standard lines offer in stock chucks, collets, mandrels, actuators, adapters, drivers, and pins for immediate delivery.

Many applications can be fully accommodated using our off-the-shelf standard items.

Ourengineerswillcustom-designsolutionsforyourspecialworkholdingapplicationsandhaveamultitude of existing drawings available for your review.

www.speedgrip.com

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