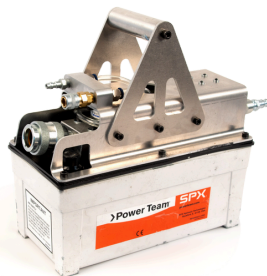
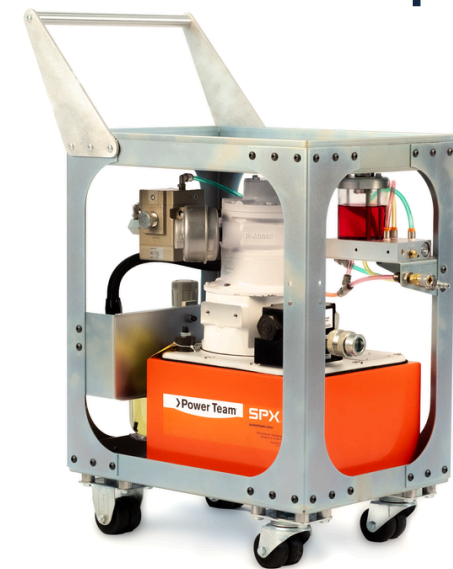




COLD WORKING CATALOG YEAR 2024



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Introduction

SLEEVE COLDWORKING INTRODUCTION

Sleeve coldworking is a versatile process used to prestress the edges of bolt or fuel flow holes in metal parts, typically repeated tensile loaded parts and fittings in aircraft structures such as lower wing skin, engine mounts, landing gear attach points and wing box areas. It can be used on aluminum, titanium and steel parts under 220KSI tensile strength.

Coldworked holes typically have 3-5X the fatigue life of non-coldworked holes. The lower the applied stress on the part, the greater the life improvement.

This allows the use of lighter structures in original design, or increased life in areas that are prematurely cracking in service - such as service bulletin work.

The system of coldwork tools in this catalog was developed at Boeing in the 1970's, it has been adopted by practically every airframe manufacturer in the world. The tools and part numbers in this catalog follow the original Boeing spec.

Basic tools are shown in this catalog. Electroimpact can build special tools to solve just about any coldwork challenge, including fully automated systems in assembly machines. Contact us for your special needs.



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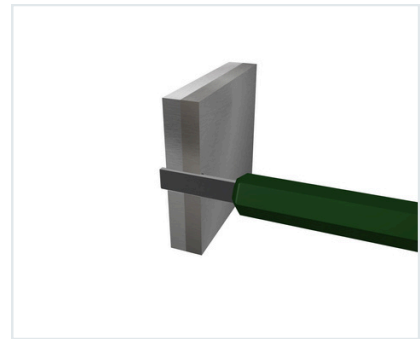
Split Sleeve Process



01 Drill starting hole



02 Ream starting hole



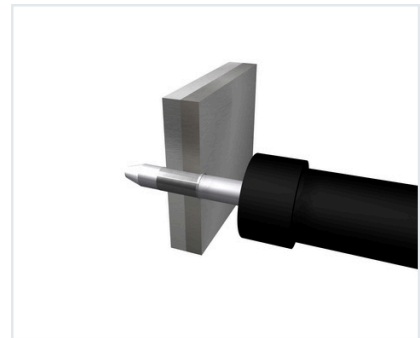
03 Check diameter with combination gauge



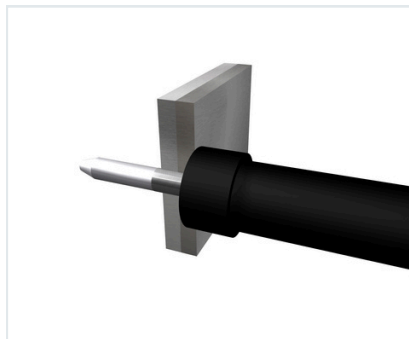
04 Inspect mandrel



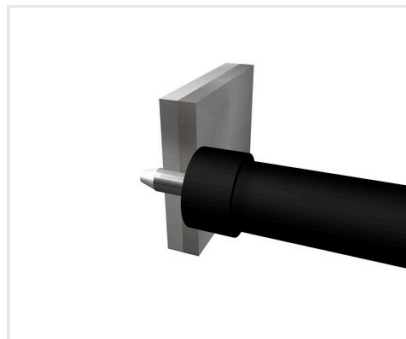
05 Slide split sleeve over mandrel



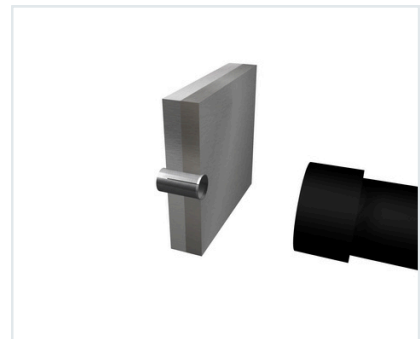
06 Insert mandrel and sleeve into hole



07 Place nose cap firmly against workpiece



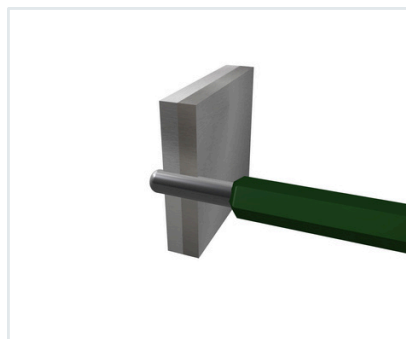
08 Expand hole by activating puller



09 Retract mandrel fully into the nose cap



10 Remove and discard used sleeve

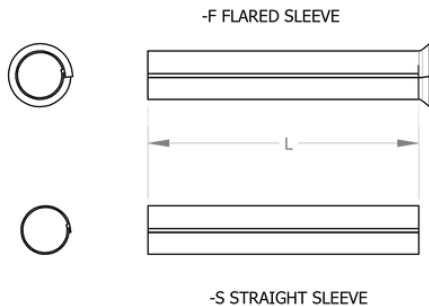


11 Verify hole size and finish ream



Sleeves

CHART SHOWS STANDARD SIZES,
SPECIALS AVAILABLE UPON REQUEST



LENGTH DASH NUMBER	SLEEVE LENGTH "L"
6	.437
16	1.0
24	1.5
32	2.0
40	2.5
48	3.0



PART NUMBER SYSTEM

EI - CBS - X - X - X - XX - X

MANUFACTURED BY
ELECTROIMPACT

CBS TYPE SLEEVE

NOMINAL HOLE SIZE IN
1/32" INCREMENTS

F = FLARED SLEEVE
S = STRAIGHT SLEEVE

SLEEVE LENGTH "L" IN
1/10TH" INCREMENTS

N = NORMAL SLEEVE
S = SPECIAL SLEEVE

0 = NO OVERSIZE
1 = 1/64 OVERSIZE
2 = 1/32 OVERSIZE
3 = 3/64 OVERSIZE





Sleeves

CHART SHOWS STANDARD SIZES,
SPECIALS AVAILABLE UPON REQUEST

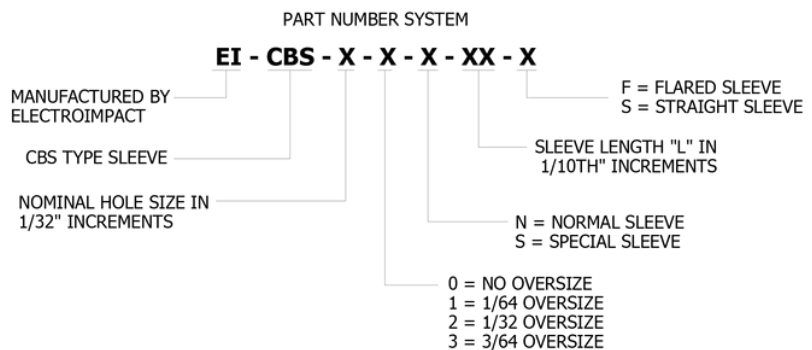


PART NUMBER	NOMINAL HOLE SIZE	SLEEVE THICKNESS
EI-CBS-6-0-N-XX-X	3/16	0.006
EI-CBS-6-1-N-XX-X	13/64	0.006
EI-CBS-6-2-N-XX-X	7/32	0.006
EI-CBS-6-3-N-XX-X	15/64	0.006
EI-CBS-8-0-N-XX-X	1/4	0.008
EI-CBS-8-1-N-XX-X	17/64	0.008
EI-CBS-8-2-N-XX-X	9/32	0.008
EI-CBS-8-3-N-XX-X	19/64	0.008
EI-CBS-10-0-N-XX-X	5/16	0.008
EI-CBS-10-1-N-XX-X	21/64	0.008
EI-CBS-10-2-N-XX-X	11/32	.010
EI-CBS-10-3-N-XX-X	23/64	.010
EI-CBS-12-0-N-XX-X	3/8	.010
EI-CBS-12-1-N-XX-X	25/64	.010
EI-CBS-12-2-N-XX-X	13/32	.010
EI-CBS-12-3-N-XX-X	27/64	.010
EI-CBS-14-0-N-XX-X	7/16	.010
EI-CBS-14-1-N-XX-X	29/64	.010
EI-CBS-14-2-N-XX-X	15/32	.010
EI-CBS-14-3-N-XX-X	31/64	.010
EI-CBS-16-0-N-XX-X	1/2	.012
EI-CBS-16-1-N-XX-X	33/64	.012
EI-CBS-16-2-N-XX-X	17/32	.012
EI-CBS-16-3-N-XX-X	35/64	.012
EI-CBS-18-0-N-XX-X	9/16	.012
EI-CBS-18-1-N-XX-X	37/64	.012
EI-CBS-18-2-N-XX-X	19/32	.012
EI-CBS-18-3-N-XX-X	39/64	.012

PART NUMBER	NOMINAL HOLE SIZE	SLEEVE THICKNESS
EI-CBS-20-0-N-XX-X	5/8	.012
EI-CBS-20-1-N-XX-X	41/64	.015
EI-CBS-20-2-N-XX-X	21/32	.015
EI-CBS-20-3-N-XX-X	43/64	.015
EI-CBS-22-0-N-XX-X	11/16	.015
EI-CBS-22-1-N-XX-X	45/64	.015
EI-CBS-22-2-N-XX-X	23/32	.015
EI-CBS-22-3-N-XX-X	47/64	.015
EI-CBS-24-0-N-XX-X	3/4	.015
EI-CBS-24-1-N-XX-X	49/64	.015
EI-CBS-24-2-N-XX-X	25/32	.018
EI-CBS-24-3-N-XX-X	51/64	.018
EI-CBS-26-0-N-XX-X	13/16	.018
EI-CBS-26-1-N-XX-X	53/64	.018
EI-CBS-26-2-N-XX-X	27/32	.018
EI-CBS-26-3-N-XX-X	55/64	.018
EI-CBS-28-0-N-XX-X	7/8	.018
EI-CBS-28-1-N-XX-X	57/64	.018
EI-CBS-28-2-N-XX-X	29/32	.018
EI-CBS-28-3-N-XX-X	59/64	.018
EI-CBS-30-0-N-XX-X	15/16	.018
EI-CBS-30-1-N-XX-X	61/64	.018
EI-CBS-30-2-N-XX-X	31/32	.018
EI-CBS-30-3-N-XX-X	63/64	.018
EI-CBS-32-0-N-XX-X	1.00	.018
EI-CBS-32-1-N-XX-X	1 1/64	.018
EI-CBS-32-2-N-XX-X	1 1/32	.018
EI-CBS-32-3-N-XX-X	1 3/64	.018

PART NUMBER	NOMINAL HOLE SIZE	SLEEVE THICKNESS
EI-CBS-36-0-N-XX-X	1 1/8	.018
EI-CBS-36-1-N-XX-X	1 9/64	.018
EI-CBS-36-2-N-XX-X	1 5/32	.018
EI-CBS-36-3-N-XX-X	1 11/64	.018
EI-CBS-38-0-N-XX-X	1 3/16	.018
EI-CBS-38-1-N-XX-X	1 13/64	.018
EI-CBS-38-2-N-XX-X	1 7/32	.018
EI-CBS-38-3-N-XX-X	1 15/64	.018
EI-CBS-40-0-N-XX-X	1 1/4	.018
EI-CBS-40-1-N-XX-X	1 17/64	.018
EI-CBS-40-2-N-XX-X	1 9/32	.018
EI-CBS-40-3-N-XX-X	1 19/64	.018
EI-CBS-44-0-N-XX-X	1 3/8	.018
EI-CBS-44-1-N-XX-X	1 25/64	.018
EI-CBS-44-2-N-XX-X	1 13/32	.018
EI-CBS-44-3-N-XX-X	1 27/64	.018
EI-CBS-48-0-N-XX-X	1 1/2	.018
EI-CBS-48-1-N-XX-X	1 33/64	.018
EI-CBS-48-2-N-XX-X	1 17/32	.018
EI-CBS-48-3-N-XX-X	1 35/64	.018
EI-CBS-52-0-N-XX-X	1 5/8	.018
EI-CBS-52-1-N-XX-X	1 41/64	.018
EI-CBS-52-2-N-XX-X	1 21/32	.018
EI-CBS-52-3-N-XX-X	1 43/64	.018
EI-CBS-56-0-N-XX-X	1 3/4	.010
EI-CBS-56-1-N-XX-X	1 49/64	.010
EI-CBS-56-2-N-XX-X	1 25/32	.010
EI-CBS-56-3-N-XX-X	1 51/64	.010

LENGTH DASH NUMBER	SLEEVE LENGTH "L"
6	.437
16	1.0
24	1.5
32	2.0
40	2.5
48	3.0

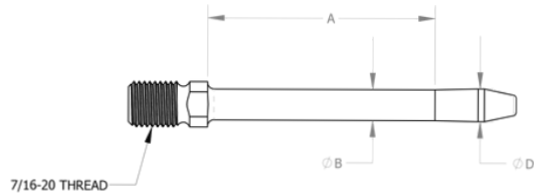




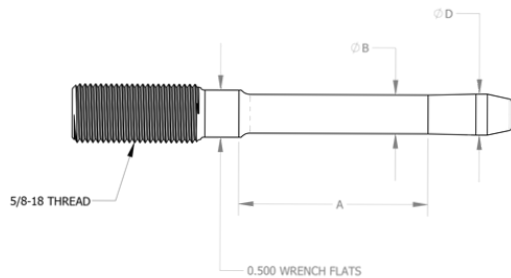
Mandrels

CHART SHOWS STANDARD SIZES,
SPECIALS AVAILABLE UPON REQUEST

TYPE 1 CBM MANDRELS 5/32" THRU 35/64" HOLE SIZE



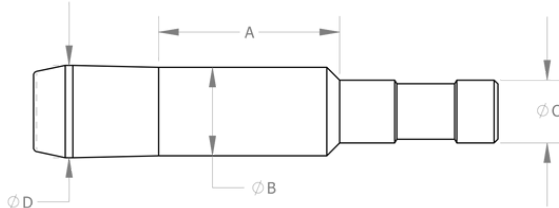
TYPE 2 CBM MANDREL 7/16" THRU 63/64" HOLE SIZE



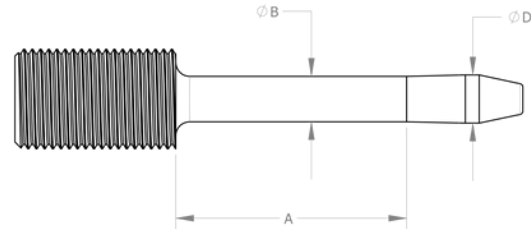
TYPE 4 CBM MANDRELS 1.00" THRU 1 49/64" HOLE SIZE



TYPE 3 CBM MANDRELS 1.00" THRU 1 51/64" HOLE SIZE



TYPE 5 CBM MANDRELS 7/16" THRU 63/64" HOLE SIZE



PART NUMBER SYSTEM

EI - CBM - XX - X - X - 1 - XX

MADE BY ELECTROIMPACT

COLDWORK BROACH MANDREL

NOMINAL HOLE DIA
IN 1/32" INCREMENTS

STACK THICKNESS IN 1/10" INCREMENTS

MANDREL THREAD TYPE - 7/16-20

N = NORMAL S = SPECIAL

0 = NOMINAL HOLE DIA
1 = FIRST OVERSIZE
2 = SECOND OVERSIZE
3 = THIRD OVERSIZE





Mandrels

TYPE 1 CBM MANDRELS 5/32" THRU 35/64" HOLE SIZE

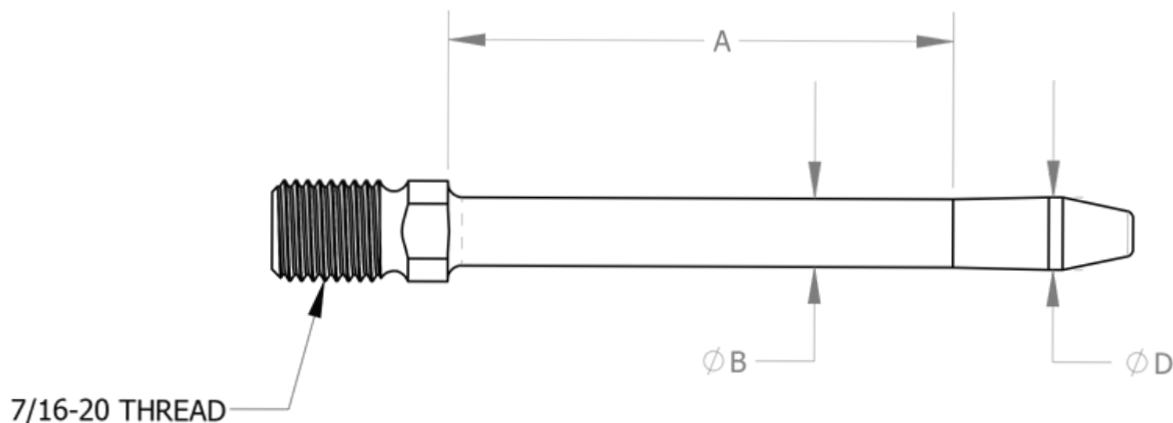
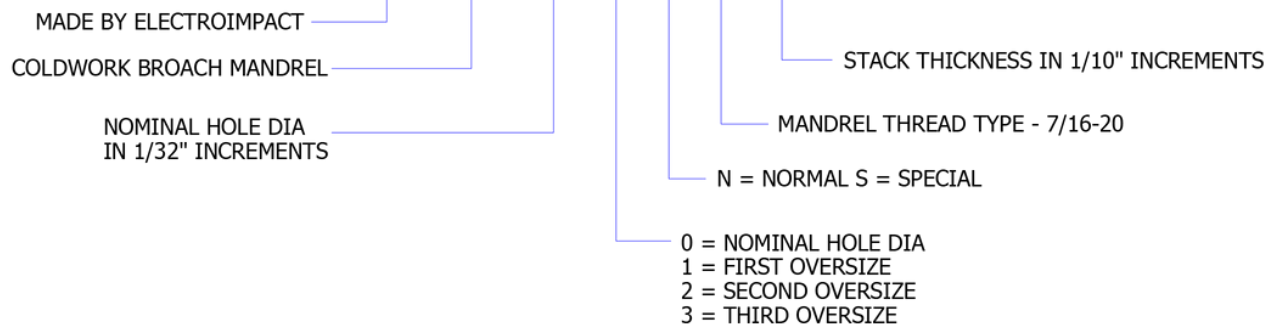
PART NUMBER	B"	D"
EI-CBM-4-2-N-1-XX	0.126	0.14
EI-CBM-4-3-N-1-XX	0.142	0.156
EI-CBM-6-0-N-1-XX	0.161	0.174
EI-CBM-6-1-N-1-XX	0.1766	0.1895
EI-CBM-6-2-N-1-XX	0.192	0.207
EI-CBM-6-3-N-1-XX	0.208	0.223
EI-CBM-8-0-N-1-XX	0.215	0.23
EI-CBM-8-1-N-1-XX	0.2311	0.246
EI-CBM-8-2-N-1-XX	0.2442	0.2617
EI-CBM-8-3-N-1-XX	0.2614	0.2789
EI-CBM-10-0-N-1-XX	0.2755	0.294
EI-CBM-10-1-N-1-XX	0.2916	0.31
EI-CBM-10-2-N-1-XX	0.3028	0.3223

PART NUMBER	B"	D"
EI-CBM-10-3-N-1-XX	0.3184	0.3379
EI-CBM-12-0-N-1-XX	0.3335	0.354
EI-CBM-12-1-N-1-XX	0.3496	0.37
EI-CBM-12-2-N-1-XX	0.3652	0.3867
EI-CBM-12-3-N-1-XX	0.3809	0.4024
EI-CBM-14-0-N-1-XX	0.395	0.418
EI-CBM-14-1-N-1-XX	0.4111	0.434
EI-CBM-14-2-N-1-XX	0.4242	0.4482
EI-CBM-14-3-N-1-XX	0.4394	0.4634
EI-CBM-16-0-N-1-XX	0.4445	0.4695
EI-CBM-16-1-N-1-XX	0.4601	0.485
EI-CBM-16-2-N-1-XX	0.4752	0.5012
EI-CBM-16-3-N-1-XX	0.4908	0.5168

PART NUMBER	A"
EI-CBM-X-X-N-1-8	1.375
EI-CBM-X-X-N-1-10	1.655
EI-CBM-X-X-N-1-15	2.155
EI-CBM-X-X-N-1-20	2.655
EI-CBM-X-X-N-1-25	3.155
EI-CBM-X-X-N-1-30	3.655
EI-CBM-X-X-N-1-35	4.155
EI-CBM-X-X-N-1-40	4.655
EI-CBM-X-X-N-1-45	5.155
EI-CBM-X-X-N-1-50	5.655
EI-CBM-X-X-N-1-55	6.155
EI-CBM-X-X-N-1-60	6.655
EI-CBM-X-X-N-1-65	7.155
EI-CBM-X-X-N-1-70	7.655
EI-CBM-X-X-N-1-75	8.155
EI-CBM-X-X-N-1-80	8.655

PART NUMBER SYSTEM

EI - CBM - XX - X - X - 1 - XX





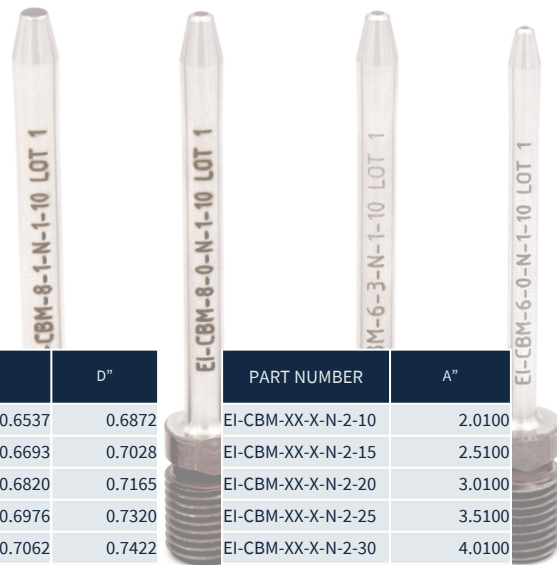
Mandrels

TYPE 2 CBM MANDREL 7/16" THRU 63/64" HOLE SIZE

PART NUMBER	B"	D"
EI-CBM-14-0-N-2-XX	0.3950	0.4180
EI-CBM-14-1-N-2-XX	0.4111	0.4340
EI-CBM-14-2-N-2-XX	0.4242	0.4482
EI-CBM-14-3-N-2-XX	0.4394	0.4634
EI-CBM-16-0-N-2-XX	0.4445	0.4695
EI-CBM-16-1-N-2-XX	0.4601	0.4850
EI-CBM-16-2-N-2-XX	0.4752	0.5012
EI-CBM-16-3-N-2-XX	0.4908	0.5168
EI-CBM-18-0-N-2-XX	0.5070	0.5340
EI-CBM-18-1-N-2-XX	0.5226	0.5495
EI-CBM-18-2-N-2-XX	0.5377	0.5657
EI-CBM-18-3-N-2-XX	0.5533	0.5813
EI-CBM-20-0-N-2-XX	0.5610	0.5915
EI-CBM-20-1-N-2-XX	0.5766	0.6070
EI-CBM-20-2-N-2-XX	0.5942	0.6257
EI-CBM-20-3-N-2-XX	0.6098	0.6413
EI-CBM-22-0-N-2-XX	0.6230	0.6555
EI-CBM-22-1-N-2-XX	0.6386	0.6710

PART NUMBER	B"	D"
EI-CBM-22-2-N-2-XX	0.6537	0.6872
EI-CBM-22-3-N-2-XX	0.6693	0.7028
EI-CBM-24-0-N-2-XX	0.6820	0.7165
EI-CBM-24-1-N-2-XX	0.6976	0.7320
EI-CBM-24-2-N-2-XX	0.7062	0.7422
EI-CBM-24-3-N-2-XX	0.7218	0.7578
EI-CBM-26-0-N-2-XX	0.7390	0.7760
EI-CBM-26-1-N-2-XX	0.7546	0.7915
EI-CBM-26-2-N-2-XX	0.7677	0.8057
EI-CBM-26-3-N-2-XX	0.7833	0.8213
EI-CBM-28-0-N-2-XX	0.7980	0.8370
EI-CBM-28-1-N-2-XX	0.8130	0.8520
EI-CBM-28-2-N-2-XX	0.8357	0.8757
EI-CBM-28-3-N-2-XX	0.8513	0.8913
EI-CBM-30-0-N-2-XX	0.8580	0.8990
EI-CBM-30-1-N-2-XX	0.8736	0.9145
EI-CBM-30-2-N-2-XX	0.8920	0.9310
EI-CBM-30-3-N-2-XX	0.9080	0.9465

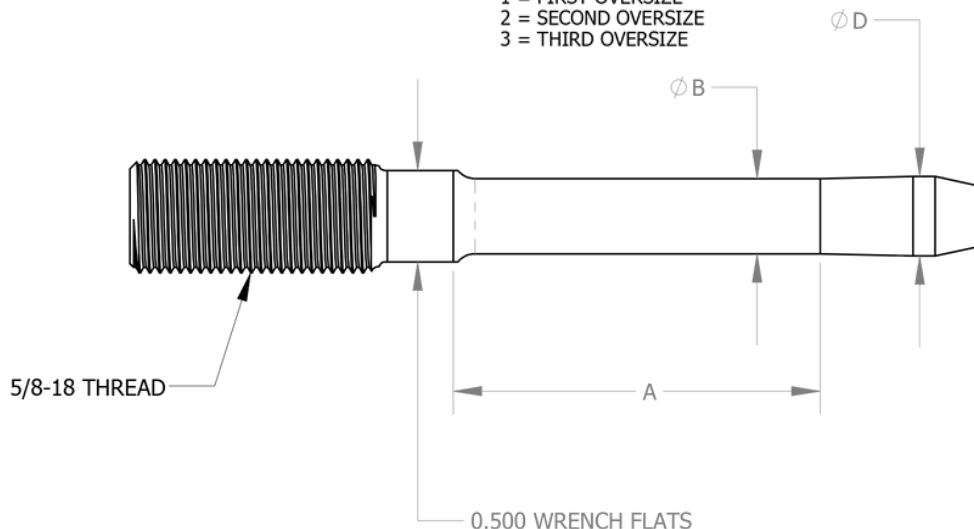
PART NUMBER	A"
EI-CBM-XX-X-N-2-10	2.0100
EI-CBM-XX-X-N-2-15	2.5100
EI-CBM-XX-X-N-2-20	3.0100
EI-CBM-XX-X-N-2-25	3.5100
EI-CBM-XX-X-N-2-30	4.0100
EI-CBM-XX-X-N-2-40	5.0100
EI-CBM-XX-X-N-2-50	6.0100
EI-CBM-XX-X-N-2-60	7.0100
EI-CBM-XX-X-N-2-70	8.0100
EI-CBM-XX-X-N-2-80	9.0100
EI-CBM-XX-X-N-2-10	2.0100
EI-CBM-XX-X-N-2-15	2.5100
EI-CBM-XX-X-N-2-20	3.0100
EI-CBM-XX-X-N-2-25	3.5100
EI-CBM-XX-X-N-2-30	4.0100
EI-CBM-XX-X-N-2-40	5.0100



PART NUMBER SYSTEM

EI - CBM - XX - X - X - 2 - XX

MADE BY ELECTROIMPACT
COLDWORK BROACH MANDREL
NOMINAL HOLE DIA IN 1/32" INCREMENTS
STACK THICKNESS IN 1/10" INCREMENTS
MANDREL THREAD TYPE - 5/8-18
N = NORMAL S = SPECIAL
0 = NOMINAL HOLE DIA
1 = FIRST OVERSIZE
2 = SECOND OVERSIZE
3 = THIRD OVERSIZE





Mandrels

TYPE 3 CBM MANDRELS 1.00" THRU 1 51/64" HOLE SIZE

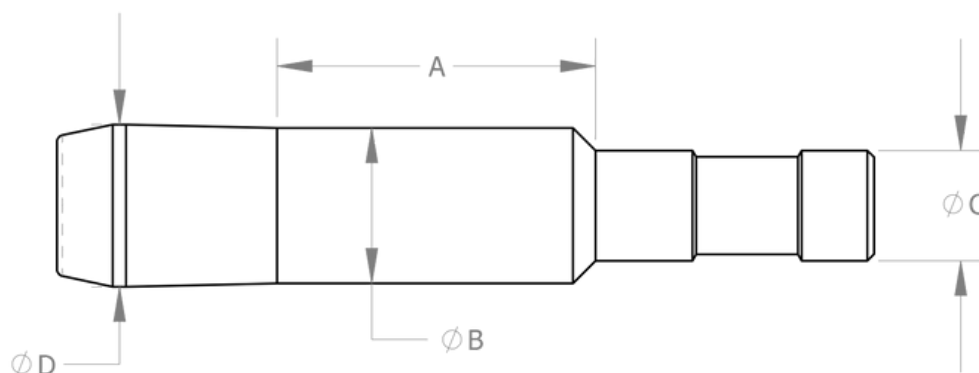
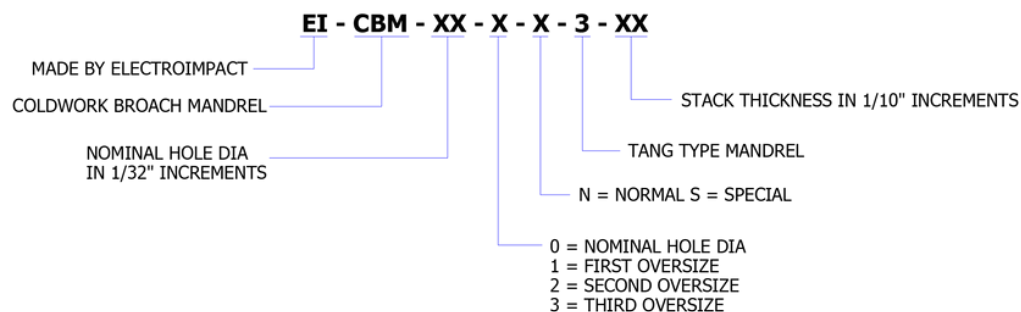
PART NUMBER	C"	B"	D"
EI-CBM-32-0-N-3-XX	0.960	0.9200	0.9655
EI-CBM-32-1-N-3-XX	0.975	0.9360	0.9815
EI-CBM-32-2-N-3-XX	0.990	0.9560	0.9975
EI-CBM-32-3-N-3-XX	0.990	0.9720	1.0135
EI-CBM-36-0-N-3-XX	0.990	1.0350	1.0800
EI-CBM-36-1-N-3-XX	0.990	1.0500	1.0960
EI-CBM-36-2-N-3-XX	0.990	1.0660	1.1120
EI-CBM-36-3-N-3-XX	0.990	1.0820	1.1280
EI-CBM-38-0-N-3-XX	0.990	1.0910	1.1425
EI-CBM-38-1-N-3-XX	0.990	1.1115	1.1585
EI-CBM-38-2-N-3-XX	0.990	1.1275	1.1745
EI-CBM-38-3-N-3-XX	0.990	1.1435	1.1905
EI-CBM-40-0-N-3-XX	0.990	1.1570	1.2080
EI-CBM-40-1-N-3-XX	0.990	1.1745	1.2240
EI-CBM-40-2-N-3-XX	0.990	1.1905	1.2400
EI-CBM-40-3-N-3-XX	0.990	1.2065	1.2560

PART NUMBER	C"	B"	D"
EI-CBM-44-0-N-3-XX	0.990	1.2700	1.3285
EI-CBM-44-1-N-3-XX	0.990	1.2955	1.3445
EI-CBM-44-2-N-3-XX	0.990	1.3115	1.3605
EI-CBM-44-3-N-3-XX	0.990	1.3275	1.3765
EI-CBM-48-0-N-3-XX	0.990	1.3820	1.4430
EI-CBM-48-1-N-3-XX	0.990	1.4025	1.4590
EI-CBM-48-2-N-3-XX	0.990	1.4185	1.4750
EI-CBM-48-3-N-3-XX	0.990	1.4345	1.4910
EI-CBM-52-0-N-3-XX	0.990	1.5185	1.5745
EI-CBM-52-1-N-3-XX	0.990	1.5345	1.5905
EI-CBM-52-2-N-3-XX	0.990	1.5505	1.6055
EI-CBM-52-3-N-3-XX	0.990	1.5665	1.6225
EI-CBM-56-0-N-3-XX	0.990	1.6700	1.7300
EI-CBM-56-1-N-3-XX	0.990	1.6850	1.7455
EI-CBM-56-2-N-3-XX	0.990	1.7000	1.7614
EI-CBM-56-3-N-3-XX	0.990	1.7160	1.7772

PART NUMBER	A"
EI-CBM-XX-X-N-3-10	2.857
EI-CBM-XX-X-N-3-15	3.357
EI-CBM-XX-X-N-3-20	3.857
EI-CBM-XX-X-N-3-25	4.357
EI-CBM-XX-X-N-3-30	4.857
EI-CBM-XX-X-N-3-35	5.357
EI-CBM-XX-X-N-3-40	5.857
EI-CBM-XX-X-N-3-45	6.357
EI-CBM-XX-X-N-3-50	6.857
EI-CBM-XX-X-N-3-55	7.357
EI-CBM-XX-X-N-3-60	7.857
EI-CBM-XX-X-N-3-65	8.357
EI-CBM-XX-X-N-3-70	8.857
EI-CBM-XX-X-N-3-75	9.357
EI-CBM-XX-X-N-3-80	9.857



PART NUMBER SYSTEM





Mandrels

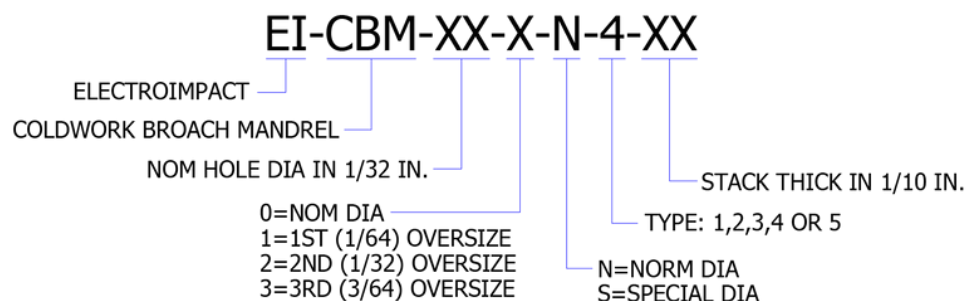
TYPE 4 CBM MANDRELS 1.00" THRU 1 49/64" HOLE SIZE

2-PIECE MANDREL FOR LARGER HOLES



PART NUMBER	B"	D"	A"	THREAD
EI-CBM-32-0-N-4-30	0.9200	0.9655	4.16	7/8-14
EI-CBM-32-0-N-4-70	0.9200	0.9655	8.16	7/8-14
EI-CBM-32-1-N-4-30	0.9360	0.9815	4.15	7/8-14
EI-CBM-32-1-N-4-70	0.9360	0.9815	8.15	7/8-14
EI-CBM-36-0-N-4-30	1.0350	1.0800	4.12	7/8-14
EI-CBM-36-0-N-4-70	1.0350	1.0800	8.12	7/8-14
EI-CBM-36-1-N-4-30	1.0500	1.0960	4.11	7/8-14
EI-CBM-36-1-N-4-70	1.0500	1.0960	8.11	7/8-14
EI-CBM-38-0-N-4-30	1.0910	1.1425	4.1	7/8-14
EI-CBM-38-0-N-4-70	1.0910	1.1425	8.1	7/8-14
EI-CBM-38-1-N-4-30	1.1115	1.1585	4.09	7/8-14
EI-CBM-38-1-N-4-70	1.1115	1.1585	8.09	7/8-14
EI-CBM-40-0-N-4-30	1.1570	1.2080	4.08	7/8-14
EI-CBM-40-0-N-4-70	1.1570	1.2080	8.08	7/8-14
EI-CBM-40-1-N-4-30	1.1745	1.2240	4.07	7/8-14
EI-CBM-40-1-N-4-70	1.1745	1.2240	8.07	7/8-14

PART NUMBER	B"	D"	A"	THREAD
EI-CBM-44-0-N-4-30	1.2700	1.3285	4.04	7/8-14
EI-CBM-44-0-N-4-70	1.2700	1.3285	8.04	7/8-14
EI-CBM-44-1-N-4-30	1.2955	1.3445	4.03	7/8-14
EI-CBM-44-1-N-4-70	1.2955	1.3445	8.03	7/8-14
EI-CBM-48-0-N-4-30	1.3820	1.4430	3.1	7/8-14
EI-CBM-48-0-N-4-70	1.3820	1.4430	7.1	7/8-14
EI-CBM-48-1-N-4-30	1.4025	1.4590	3.99	7/8-14
EI-CBM-48-1-N-4-70	1.4025	1.4590	7.1	7/8-14
EI-CBM-52-0-N-4-30	1.5185	1.5745	3.99	1"-14
EI-CBM-52-0-N-4-70	1.5185	1.5745	7.99	1"-14
EI-CBM-52-1-N-4-30	1.5345	1.5905	3.99	1"-14
EI-CBM-52-1-N-4-70	1.5345	1.5905	7.99	1"-14
EI-CBM-56-0-N-4-30	1.6700	1.7300	3.94	1"-14
EI-CBM-56-0-N-4-70	1.6700	1.7300	7.94	1"-14
EI-CBM-56-1-N-4-30	1.6850	1.7455	3.94	1"-14
EI-CBM-56-1-N-4-70	1.6850	1.7455	7.94	1"-14





Mandrels

TYPE 5 CBM MANDRELS 7/16" THRU 63/64" HOLE SIZE

PART NUMBER	B"	D"
EI-CBM-14-0-N-5-XX	0.3950	0.4180
EI-CBM-14-1-N-5-XX	0.4111	0.4340
EI-CBM-14-2-N-5-XX	0.4242	0.4482
EI-CBM-14-3-N-5-XX	0.4394	0.4634
EI-CBM-16-0-N-5-XX	0.4445	0.4695
EI-CBM-16-1-N-5-XX	0.4601	0.4850
EI-CBM-16-2-N-5-XX	0.4752	0.5012
EI-CBM-16-3-N-5-XX	0.4908	0.5168
EI-CBM-18-0-N-5-XX	0.5070	0.5340
EI-CBM-18-1-N-5-XX	0.5226	0.5495
EI-CBM-18-2-N-5-XX	0.5377	0.5657
EI-CBM-18-3-N-5-XX	0.5533	0.5813
EI-CBM-20-0-N-5-XX	0.5610	0.5915
EI-CBM-20-1-N-5-XX	0.5766	0.6070
EI-CBM-20-2-N-5-XX	0.5942	0.6257
EI-CBM-20-3-N-5-XX	0.6098	0.6413
EI-CBM-22-0-N-5-XX	0.6230	0.6555
EI-CBM-22-1-N-5-XX	0.6386	0.6710

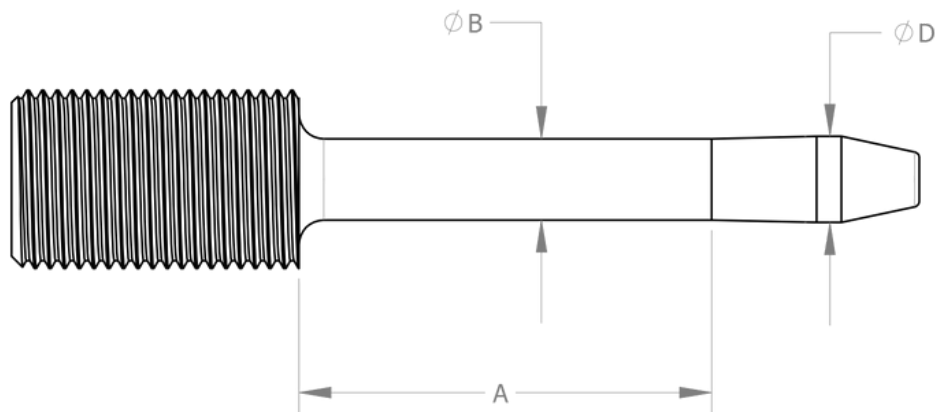
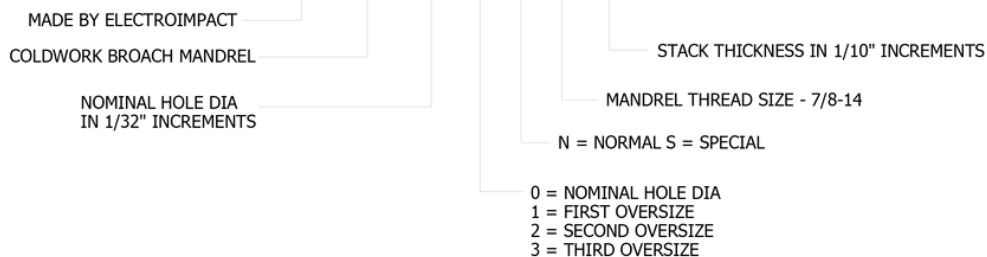
PART NUMBER	B"	D"
EI-CBM-22-2-N-5-XX	0.6537	0.6872
EI-CBM-22-3-N-5-XX	0.6693	0.7028
EI-CBM-24-0-N-5-XX	0.6820	0.7165
EI-CBM-24-1-N-5-XX	0.6976	0.7320
EI-CBM-24-2-N-5-XX	0.7062	0.7422
EI-CBM-24-3-N-5-XX	0.7218	0.7578
EI-CBM-26-0-N-5-XX	0.7390	0.7760
EI-CBM-26-1-N-5-XX	0.7546	0.7915
EI-CBM-26-2-N-5-XX	0.7677	0.8057
EI-CBM-26-3-N-5-XX	0.7833	0.8213
EI-CBM-28-0-N-5-XX	0.7980	0.8370
EI-CBM-28-1-N-5-XX	0.8130	0.8520
EI-CBM-28-2-N-5-XX	0.8357	0.8757
EI-CBM-28-3-N-5-XX	0.8513	0.8913
EI-CBM-30-0-N-5-XX	0.8580	0.8990
EI-CBM-30-1-N-5-XX	0.8736	0.9145
EI-CBM-30-2-N-5-XX	0.8920	0.9310
EI-CBM-30-3-N-5-XX	0.9080	0.9465

PART NUMBER	A"
EI-CBM-XX-X-N-5-10	2.010
EI-CBM-XX-X-N-5-15	2.510
EI-CBM-XX-X-N-5-20	3.010
EI-CBM-XX-X-N-5-25	3.510
EI-CBM-XX-X-N-5-30	4.010
EI-CBM-XX-X-N-5-35	4.510
EI-CBM-XX-X-N-5-40	5.010
EI-CBM-XX-X-N-5-50	6.010
EI-CBM-XX-X-N-5-60	7.010
EI-CBM-XX-X-N-5-70	8.010



PART NUMBER SYSTEM

EI - CBM - XX - X - X - 5 - XX





Pumps

MEDIUM HYDRAULIC POWERPACK

PART NUMBER: EI-PUM-M

AIR DRIVEN HYDRAULIC PUMP

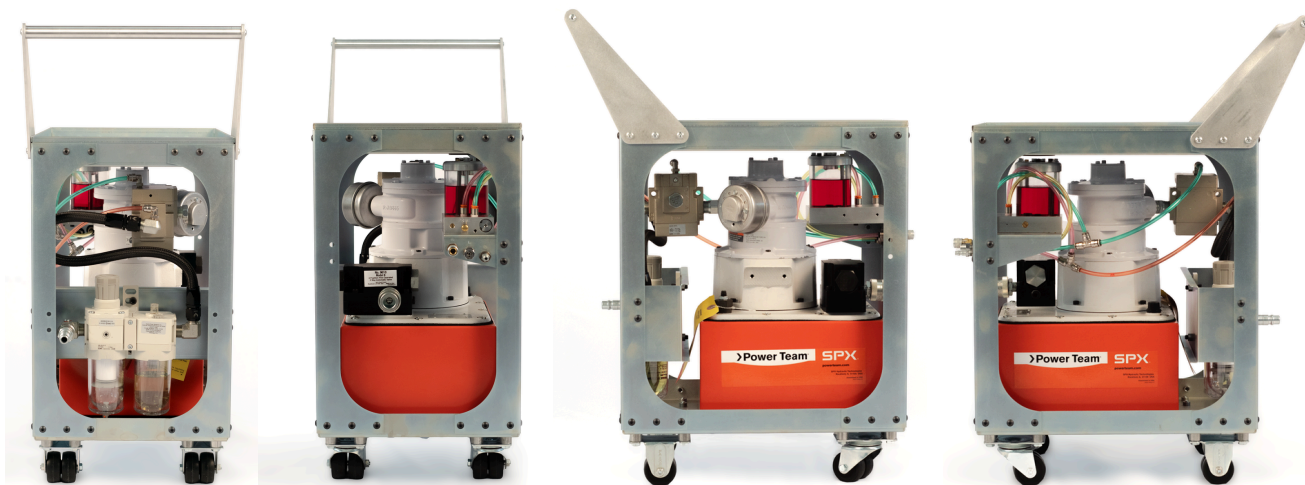
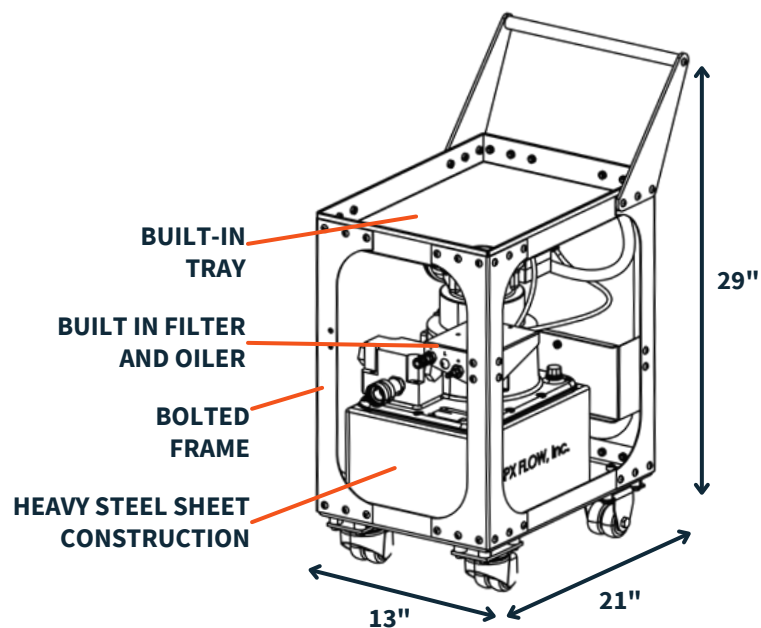
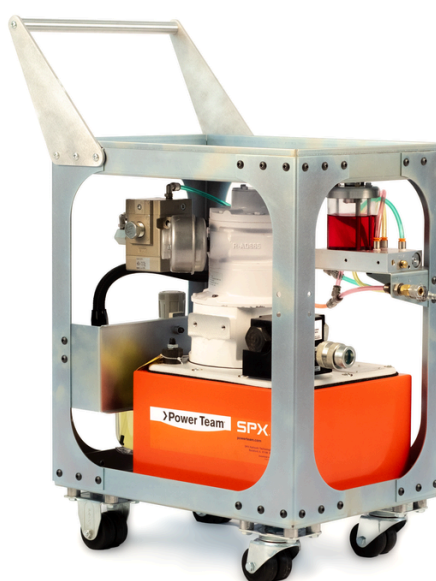
90 PSI AIR INPUT / 10,000 PSI OIL / OUTPUT WEIGHT 81 LB

HEIGHT 29" WIDTH 13" LENGTH 21"

OIL OUTPUT 46 CU. IN. MINUTE @10,000 PSI

This pump features heavy steel sheet construction to withstand real-world shop conditions.

- Frame is bolted together for easy service.
- Top of frame has built-in tray to carry your puller, hose assembly and tools.
- Based on the industry standard SPX flow hydraulic pump.
- Pump has built-in filter and oiler.
- Oil outlet and pneumatic fittings are compatible with coldwork tools from other manufacturers.





Pumps

SMALL HYDRAULIC PUMP

PART NUMBER: EI-PUM-S

AIR DRIVEN HYDRAULIC PUMP

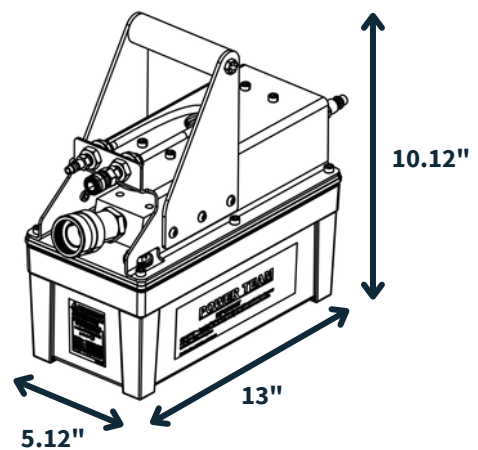
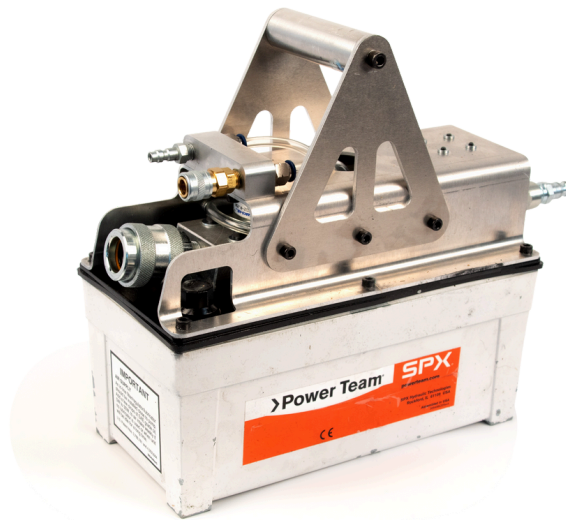
90 PSI AIR INPUT / 10,000 PSI OIL OUTPUT / WEIGHT 20.5 LB

HEIGHT 10.12", LENGTH 13", WIDTH 5.12"

OIL FLOW 6 CU. IN/MIN @ 10,000 PSI

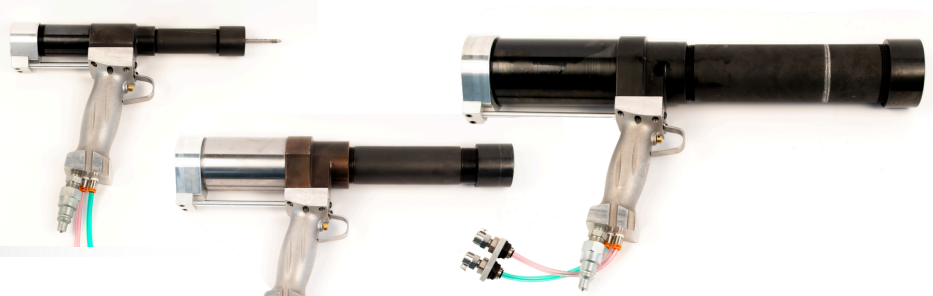
This pump is designed to be compact and lightweight, making it ideal for use in tight spaces such as within a wing or helicopter fuselage where larger, faster pumps are impractical.

- Output fittings are compatible with coldwork tools from other manufacturers.





Pullers

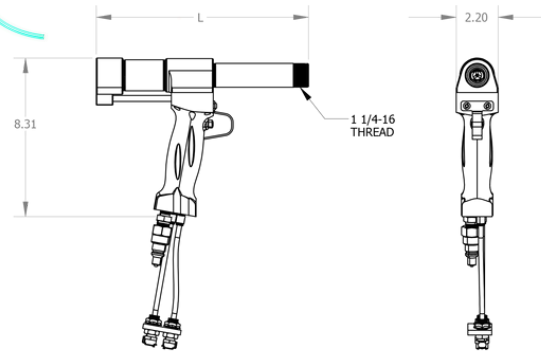


SLEEVE TYPE COLDWORK PULLER GUN - SMALL

PULL FORCE 9780 LB @10,000 PSI OIL PRESSURE

WEIGHT APPROX. 8 LB

STACKUP XX	STACKUP IN INCHES	PULLER DIM. L
10	1"	9.86"
20	2"	11.86"
30	3"	13.86"

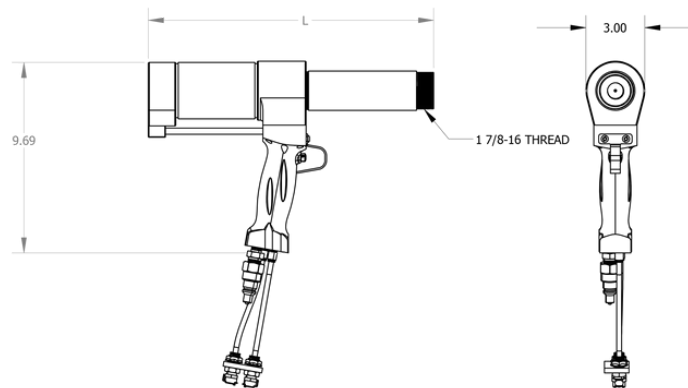


SLEEVE TYPE COLDWORK PULLER GUN - MEDIUM

PULL FORCE 30,900 LB @10,000 PSI OIL PRESSURE

WEIGHT APPROX. 15 LB

STACKUP XX	STACKUP IN INCHES	PULLER DIM. L
10	1"	11.35"
20	2"	13.35"
30	3"	15.35"
40	4"	17.35"
50	5"	19.35"

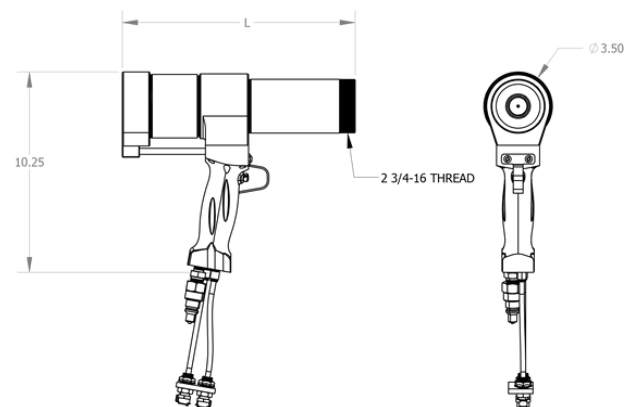


SLEEVE TYPE COLDWORK PULLER GUN - LARGE

PULL FORCE 44,000 LB @10,000 PSI OIL PRESSURE

WEIGHT 19.9 - 33.1 LB (DEPENDING ON STACKUP)

STACKUP XX	STACKUP IN INCHES	PULLER DIM. L
20	2"	15.51"
30	3"	17.51"
40	4"	19.51"
50	5"	21.51"
60	6"	23.51"



PART NUMBER SYSTEM

EI - PL - X - XX

MADE BY ELECTROIMPACT

TOOL TYPE - PULLER

STACKUP CAPABILITY IN 1/10" INCREMENTS

SIZE PULLER



Hose Assembly

HOSE ASSEMBLY SLEEVE TYPE PULLER

CONNECTS PULLER TO POWERPACK
RATED FOR 10,000 PSI SERVICE



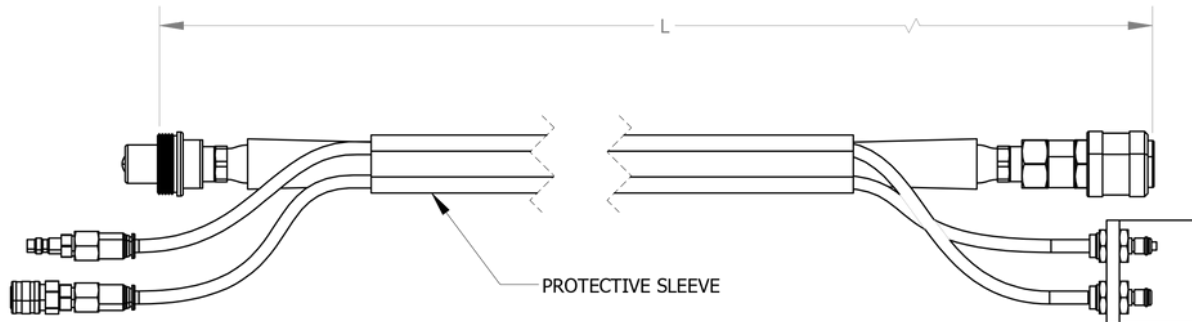
PART NUMBER SYSTEM

EI - H - XX

MADE BY ELECTROIMPACT

HOSE LENGTH IN FEET (STANDARD LENGTHS 10,20,30, 50 FT)

SLEEVE TYPE HOSE ASSEMBLY

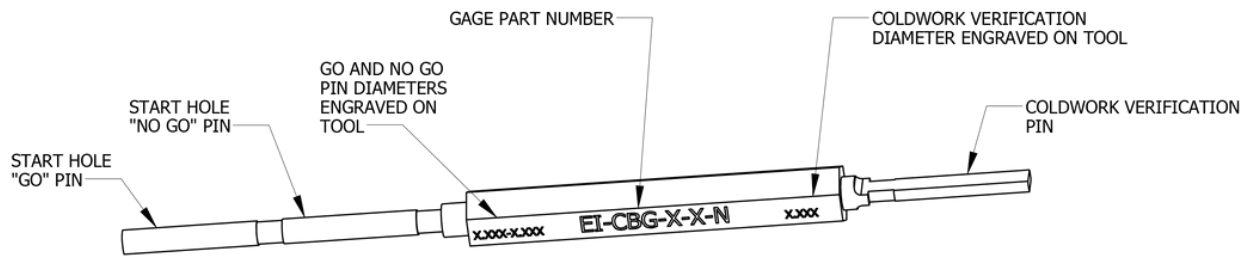




Gages

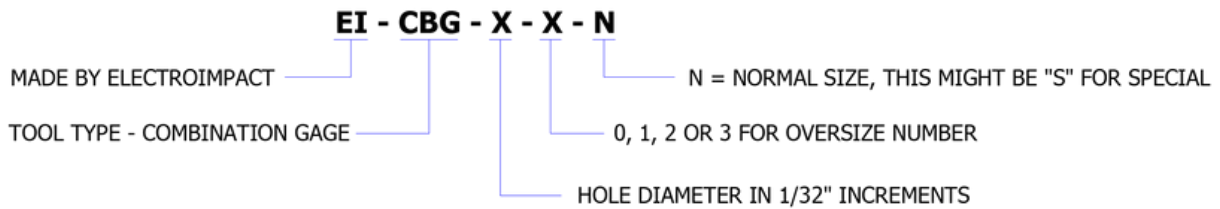
COMBINATION GAGE

Coldworking is an input - variable controlled process, since it is difficult to measure the amount of coldwork in a hole. If the mandrel, start hole and sleeve size are correct, coldworking will have the desired fatigue life extending effect.



This gage has a go-no go combination pin on one end to check that the start hole is the right diameter. The other end has a pin with the sides cut off - the pin is slightly larger than the "No-go" pin on the other end. This verifies that the hole actually got coldworked. The sides of the pin are cut off so the pin can go into a hole that still has the ridge from the sleeve pressed into it, which prevents a full diameter pin from going into the hole.

PART NUMBER SYSTEM





Gages

COMBINATION GAGE SIZES

PART NUMBER	NO GO	GO	COLDWORK VERIFY
EI-CBG-4-0-N	0.1150	0.1130	0.116
EI-CBG-4-1-N	0.1300	0.1280	0.131
EI-CBG-4-2-N	0.1460	0.1430	0.147
EI-CBG-4-3-N	0.1620	0.1600	0.163
EI-CBG-4-4-N	0.1710	0.1690	0.172
EI-CBG-6-0-N	0.1800	0.1770	0.181
EI-CBG-6-1-N	0.1950	0.1920	0.196
EI-CBG-6-2-N	0.2120	0.2090	0.213
EI-CBG-6-3-N	0.2280	0.2250	0.229
EI-CBG-8-0-N	0.2380	0.2350	0.239
EI-CBG-8-1-N	0.2540	0.2510	0.255
EI-CBG-8-2-N	0.2690	0.2660	0.270
EI-CBG-8-3-N	0.2860	0.2830	0.287
EI-CBG-10-0-N	0.3000	0.2970	0.301
EI-CBG-10-1-N	0.3160	0.3130	0.317
EI-CBG-10-2-N	0.3310	0.3280	0.332
EI-CBG-10-3-N	0.3470	0.3440	0.348
EI-CBG-12-0-N	0.3620	0.3590	0.363
EI-CBG-12-1-N	0.3780	0.3750	0.379
EI-CBG-12-2-N	0.3940	0.3910	0.395
EI-CBG-12-3-N	0.4090	0.4060	0.410
EI-CBG-14-0-N	0.4240	0.4210	0.425
EI-CBG-14-1-N	0.4400	0.4370	0.441
EI-CBG-14-2-N	0.4530	0.4500	0.454
EI-CBG-14-3-N	0.4680	0.4650	0.469
EI-CBG-16-0-N	0.4770	0.4740	0.478
EI-CBG-16-1-N	0.4930	0.4900	0.494
EI-CBG-16-2-N	0.5080	0.5050	0.509
EI-CBG-16-3-N	0.5280	0.5210	0.529
EI-CBG-18-0-N	0.5400	0.5370	0.541
EI-CBG-18-1-N	0.5560	0.5530	0.557
EI-CBG-18-2-N	0.5710	0.5680	0.572
EI-CBG-18-3-N	0.5860	0.5830	0.587
EI-CBG-20-0-N	0.6000	0.5970	0.601
EI-CBG-20-1-N	0.6160	0.6130	0.617
EI-CBG-20-2-N	0.6340	0.6310	0.635
EI-CBG-20-3-N	0.6490	0.6460	0.650
EI-CBG-22-0-N	0.6620	0.6590	0.663
EI-CBG-22-1-N	0.6780	0.6750	0.679
EI-CBG-22-2-N	0.6930	0.6900	0.694
EI-CBG-22-3-N	0.7090	0.7060	0.710
EI-CBG-24-0-N	0.7210	0.7180	0.722
EI-CBG-24-1-N	0.7370	0.7340	0.738
EI-CBG-24-2-N	0.7520	0.7490	0.753
EI-CBG-24-3-N	0.7680	0.7650	0.769

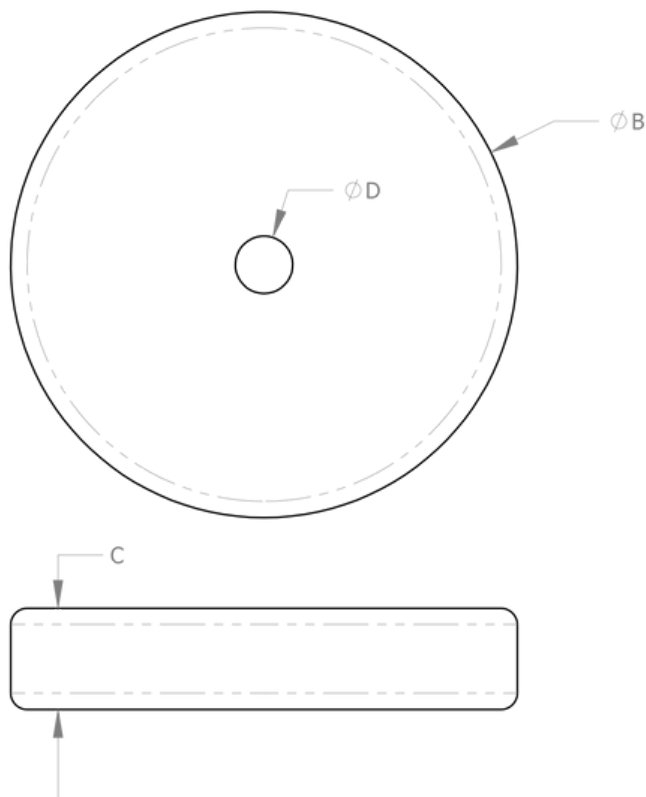
PART NUMBER	NO GO	GO	COLDWORK VERIFY
EI-CBG-26-0-N	0.7850	0.7820	0.786
EI-CBG-26-1-N	0.8010	0.7980	0.802
EI-CBG-26-2-N	0.8140	0.8110	0.815
EI-CBG-26-3-N	0.8290	0.8260	0.83
EI-CBG-28-0-N	0.8440	0.8410	0.845
EI-CBG-28-1-N	0.8600	0.8570	0.861
EI-CBG-28-2-N	0.8820	0.8790	0.883
EI-CBG-28-3-N	0.8970	0.8940	0.898
EI-CBG-30-0-N	0.9040	0.9010	0.905
EI-CBG-30-1-N	0.9200	0.9170	0.921
EI-CBG-30-2-N	0.9360	0.9330	0.937
EI-CBG-30-3-N	0.9520	0.9490	0.953
EI-CBG-32-0-N	0.9680	0.9650	0.969
EI-CBG-32-1-N	0.9840	0.9810	0.985
EI-CBG-32-2-N	1.0000	0.9970	1.001
EI-CBG-32-3-N	1.0160	1.0130	1.017
EI-CBG-36-0-N	1.0780	1.0750	1.079
EI-CBG-36-1-N	1.0940	1.0910	1.095
EI-CBG-36-2-N	1.1100	1.1070	1.111
EI-CBG-36-3-N	1.1260	1.1230	1.127
EI-CBG-38-0-N	1.1400	1.1360	1.141
EI-CBG-38-1-N	1.1560	1.1520	1.157
EI-CBG-38-2-N	1.1720	1.1680	1.173
EI-CBG-38-3-N	1.1880	1.1840	1.189
EI-CBG-40-0-N	1.2030	1.1990	1.204
EI-CBG-40-1-N	1.2190	1.2150	1.22
EI-CBG-40-2-N	1.2350	1.2310	1.236
EI-CBG-40-3-N	1.2510	1.2470	1.252
EI-CBG-44-0-N	1.3200	1.3160	1.321
EI-CBG-44-1-N	1.3400	1.3360	1.341
EI-CBG-44-2-N	1.3560	1.3520	1.357
EI-CBG-44-3-N	1.3720	1.3680	1.373
EI-CBG-48-0-N	1.4310	1.4270	1.432
EI-CBG-48-1-N	1.4470	1.4430	1.448
EI-CBG-48-2-N	1.4630	1.4590	1.464
EI-CBG-48-3-N	1.4790	1.4750	1.48
EI-CBG-52-0-N	1.5630	1.5590	1.564
EI-CBG-52-1-N	1.5790	1.5750	1.58
EI-CBG-52-2-N	1.5950	1.5910	1.596
EI-CBG-52-3-N	1.6110	1.6070	1.612
EI-CBG-56-0-N	1.7000	1.6960	1.701
EI-CBG-56-1-N	1.7150	1.7110	1.716
EI-CBG-56-2-N	1.7300	1.7260	1.731
EI-CBG-56-3-N	1.7460	1.7420	1.747



Gages

WEAR GAGE

Wear gages are used to verify that mandrels are not worn too small to still be useable. If a mandrel goes thru the wear gage, it must be discarded.



PART NUMBER SYSTEM

EI - WG - X - X - N - XXXX

MADE BY ELECTROIMPACT

TOOL TYPE - WEAR GAGE

NOMINAL HOLE SIZE IN 1/32" INCREMENTS

ACTUAL HOLE SIZE IN WEAR GAGE

N = NORMAL S = SPECIAL

OVERSIZE NUMBER - 0, 1, 2, OR 3



Gages

WEAR GAGE SIZES

PART NUMBER	D	C	B
EI-WG - 4-0-N - 0.1064"	0.1064	0.1875	0.9375
EI-WG - 4-1-N - 0.1224"	0.1224	0.1875	0.9375
EI-WG - 4-2-N - 0.1394"	0.1394	0.1875	0.9375
EI-WG - 4-3-N - 0.1554"	0.1554	0.3750	0.9375
EI-WG - 4-4-N - 0.1648"	0.1648	0.3750	0.9375
EI-WG - 6-0-N - 0.1734"	0.1734	0.3750	0.9375
EI-WG - 6-1-N - 0.1889"	0.1889	0.3750	0.9375
EI-WG - 6-2-N - 0.2064"	0.2064	0.3750	0.9375
EI-WG - 6-3-N - 0.2224"	0.2224	0.3750	0.9375
EI-WG - 8-0-N - 0.2294"	0.2294	0.3750	0.9375
EI-WG - 8-1-N - 0.2454"	0.2454	0.5625	1.1250
EI-WG - 8-2-N - 0.2611"	0.2611	0.5625	1.1250
EI-WG - 8-3-N - 0.2783"	0.2783	0.5625	1.1250
EI-WG - 10-0-N - 0.293"	0.2930	0.5625	1.1250
EI-WG - 10-1-N - 0.309"	0.3090	0.5625	1.1250
EI-WG - 10-2-N - 0.3213"	0.3213	0.5625	1.1250
EI-WG - 10-3-N - 0.3369"	0.3369	0.5625	1.1250
EI-WG - 12-0-N - 0.353"	0.3530	0.5625	1.1250
EI-WG - 12-1-N - 0.369"	0.3690	0.7500	1.3750
EI-WG - 12-2-N - 0.3857"	0.3857	1.7500	1.3750
EI-WG - 12-3-N - 0.4014"	0.4014	2.7500	1.3750
EI-WG - 14-0-N - 0.417"	0.4170	3.7500	1.3750
EI-WG - 14-1-N - 0.433"	0.4330	4.7500	1.3750
EI-WG - 14-2-N - 0.4472"	0.4472	5.7500	1.3750
EI-WG - 14-3-N - 0.4624"	0.4624	6.7500	1.3750
EI-WG - 16-0-N - 0.4685"	0.4685	7.7500	1.3750
EI-WG - 16-1-N - 0.484"	0.4840	8.7500	1.3750
EI-WG - 16-2-N - 0.5002"	0.5002	9.7500	1.3750
EI-WG - 16-3-N - 0.5158"	0.5158	0.9375	1.7500
EI-WG - 18-0-N - 0.533"	0.5330	0.9375	1.7500
EI-WG - 18-1-N - 0.5485"	0.5485	0.9375	1.7500
EI-WG - 18-2-N - 0.5647"	0.5647	0.9375	1.7500
EI-WG - 18-3-N - 0.5803"	0.5803	0.9375	1.7500
EI-WG - 20-0-N - 0.5898"	0.5898	0.9375	1.7500
EI-WG - 20-1-N - 0.6053"	0.6053	0.9375	1.7500
EI-WG - 20-2-N - 0.624"	0.6240	0.9375	1.7500
EI-WG - 20-3-N - 0.6396"	0.6396	0.9375	1.7500
EI-WG - 22-0-N - 0.6538"	0.6538	0.9375	1.7500
EI-WG - 22-1-N - 0.6693"	0.6693	0.9375	1.7500
EI-WG - 22-2-N - 0.6855"	0.6855	0.9375	1.7500
EI-WG - 22-3-N - 0.7011"	0.7011	0.9375	1.7500
EI-WG - 24-0-N - 0.7148"	0.7148	0.9375	1.7500
EI-WG - 24-1-N - 0.7303"	0.7303	0.9375	1.7500
EI-WG - 24-2-N - 0.7405"	0.7405	0.9375	1.7500
EI-WG - 24-3-N - 0.7561"	0.7561	0.9375	1.7500

PART NUMBER	D	C	B
EI-WG - 26-0-N - 0.7743"	0.7743	0.9375	1.7500
EI-WG - 26-1-N - 0.7898"	0.7898	0.9375	1.7500
EI-WG - 26-2-N - 0.804"	0.8040	0.9375	1.7500
EI-WG - 26-3-N - 0.8196"	0.8196	0.9375	1.7500
EI-WG - 28-0-N - 0.8353"	0.8353	1.1250	2.1250
EI-WG - 28-1-N - 0.8503"	0.8503	1.1250	2.1250
EI-WG - 28-2-N - 0.874"	0.8740	1.1250	2.1250
EI-WG - 28-3-N - 0.8896"	0.8896	1.1250	2.1250
EI-WG - 30-0-N - 0.8973"	0.8973	1.1250	2.1250
EI-WG - 30-1-N - 0.9128"	0.9128	1.1250	2.1250
EI-WG - 30-2-N - 0.9293"	0.9293	1.1250	2.1250
EI-WG - 30-3-N - 0.9448"	0.9448	1.1250	2.1250
EI-WG - 32-0-N - 0.9638"	0.9638	1.1250	2.1250
EI-WG - 32-1-N - 0.9798"	0.9798	1.1250	2.1250
EI-WG - 32-2-N - 0.9958"	0.9958	1.1250	2.1250
EI-WG - 32-3-N - 1.0118"	1.0118	1.1250	2.1250
EI-WG - 36-0-N - 1.0783"	1.0783	1.1250	2.1250
EI-WG - 36-1-N - 1.0943"	1.0943	1.1250	2.1250
EI-WG - 36-2-N - 1.1103"	1.1103	1.1250	2.1250
EI-WG - 36-3-N - 1.1263"	1.1263	1.1250	2.1250
EI-WG - 1.1408"	1.1408	1.3125	2.5000
EI-WG - 1.1568"	1.1568	1.3125	2.5000
EI-WG - 1.1728"	1.1728	1.3125	2.5000
EI-WG - 1.1888"	1.1888	1.3125	2.5000
EI-WG - 1.2063"	1.2063	1.3125	2.5000
EI-WG - 1.2223"	1.2223	1.3125	2.5000
EI-WG - 1.2383"	1.2383	1.3125	2.5000
EI-WG - 1.2543"	1.2543	1.3125	2.5000
EI-WG - 1.3268"	1.3268	1.3125	2.5000
EI-WG - 1.3428"	1.3428	1.3125	2.5000
EI-WG - 1.3588"	1.3588	1.3125	2.5000
EI-WG - 1.3748"	1.3748	1.3125	2.5000
EI-WG - 1.4413"	1.4413	1.3125	2.5000
EI-WG - 1.4573"	1.4573	1.3125	2.5000
EI-WG - 1.4733"	1.4733	1.3125	2.5000
EI-WG - 1.4893"	1.4893	1.3125	2.5000
EI-WG - 1.5728"	1.5728	1.5000	4.0000
EI-WG - 1.5888"	1.5888	1.5000	4.0000
EI-WG - 1.6038"	1.6038	1.5000	4.0000
EI-WG - 1.6208"	1.6208	1.5000	4.0000
EI-WG - 1.7283"	1.7283	1.5000	4.0000
EI-WG - 1.7438"	1.7438	1.5000	4.0000
EI-WG - 1.7597"	1.7597	1.5000	4.0000
EI-WG - 1.7755"	1.7755	1.5000	4.0000