

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT7788859

SUBMISSION TYPE:	RESUBMISSION
NATURE OF CONVEYANCE:	RELEASE OF SECURITY INTEREST
RESUBMIT DOCUMENT ID:	507455374

CONVEYING PARTY DATA

Name	Execution Date
BARCLAYS BANK PLC	08/17/2022

RECEIVING PARTY DATA

Name:	MKS INSTRUMENTS, INC.
Street Address:	2 TECH DRIVE
Internal Address:	SUITE 201
City:	ANDOVER
State/Country:	MASSACHUSETTS
Postal Code:	01810
Name:	NEWPORT CORPORATION
Street Address:	2 TECH DRIVE
Internal Address:	SUITE 201
City:	ANDOVER
State/Country:	MASSACHUSETTS
Postal Code:	01810
Name:	ELECTRO SCIENTIFIC INDUSTRIES, INC.
Street Address:	14523 SW MILLIKAN WAY
City:	BEAVERTON
State/Country:	OREGON
Postal Code:	97005

PROPERTY NUMBERS Total: 1168

Property Type	Number
Patent Number:	8749939
Application Number:	14742402
Patent Number:	9039985
Application Number:	14705439
Application Number:	14723114
Application Number:	14212398
Patent Number:	8882885

Property Type	Number
Patent Number:	8520413
Application Number:	13314347
Application Number:	14616431
Application Number:	14616089
Patent Number:	8339607
Patent Number:	7502114
Patent Number:	8085401
Patent Number:	7616462
Patent Number:	7569790
Patent Number:	8124906
Patent Number:	8779322
Patent Number:	8624501
Application Number:	14843412
Patent Number:	6150628
Patent Number:	6486431
Patent Number:	6815633
Patent Number:	6664497
Patent Number:	6559408
Patent Number:	7161112
Patent Number:	6924455
Patent Number:	7166816
Patent Number:	7541558
Patent Number:	6388226
Patent Number:	6552296
Patent Number:	6059517
Patent Number:	6948504
Patent Number:	7264006
Patent Number:	7622037
Patent Number:	6805791
Patent Number:	6163006
Patent Number:	5869802
Patent Number:	6225592
Patent Number:	6887339
Patent Number:	6786976
Patent Number:	7067017
Patent Number:	6872909
Patent Number:	7501600
Patent Number:	7659489

Property Type	Number
Patent Number:	8692466
Patent Number:	8888982
Patent Number:	7731161
Patent Number:	8448925
Patent Number:	8727323
Patent Number:	9275839
Patent Number:	7353771
Patent Number:	8641978
Patent Number:	8226900
Patent Number:	7892502
Patent Number:	8480862
Patent Number:	8053700
Application Number:	14226994
Application Number:	14645837
Patent Number:	9056262
Application Number:	14710255
Application Number:	14990777
Patent Number:	9302912
Application Number:	15056330
Patent Number:	8680777
Patent Number:	7238266
Patent Number:	7969096
Application Number:	14978091
Patent Number:	7620516
Patent Number:	7072985
Patent Number:	7725606
Patent Number:	7200671
Patent Number:	7437204
Patent Number:	6993404
Patent Number:	8108174
Patent Number:	7630786
Patent Number:	6884147
Patent Number:	8855804
Application Number:	14324540
Patent Number:	8773019
Patent Number:	8791772
Application Number:	14444133
Application Number:	13826571

Property Type	Number
Application Number:	14953917
Application Number:	14828597
Patent Number:	6204657
Patent Number:	7304438
Patent Number:	7755300
Patent Number:	7075366
Patent Number:	7248113
Patent Number:	7639015
Patent Number:	8461842
Patent Number:	6995545
Patent Number:	6967305
Patent Number:	8089026
Patent Number:	7336511
Patent Number:	6781317
Patent Number:	6608446
Patent Number:	6995570
Patent Number:	6064559
Patent Number:	6707255
Patent Number:	6587019
Patent Number:	6750711
Patent Number:	6983215
Patent Number:	9011633
Patent Number:	9041292
Patent Number:	7602127
Patent Number:	8110991
Patent Number:	8395322
Patent Number:	8102954
Patent Number:	9294136
Patent Number:	7506014
Patent Number:	7777567
Patent Number:	9214909
Patent Number:	7548741
Application Number:	12174893
Patent Number:	7863996
Patent Number:	8890537
Patent Number:	7728602
Patent Number:	8055203
Patent Number:	8190380

Property Type	Number
Patent Number:	8576013
Patent Number:	9041471
Patent Number:	8952765
Patent Number:	9291649
Patent Number:	8237501
Patent Number:	8581597
Patent Number:	8264237
Patent Number:	8289029
Patent Number:	8334700
Patent Number:	8659335
Patent Number:	8912835
Patent Number:	8314561
Patent Number:	6524455
Patent Number:	6863789
Patent Number:	7261797
Patent Number:	6555994
Patent Number:	6677828
Patent Number:	7477711
Patent Number:	6201395
Patent Number:	6178102
Patent Number:	8710926
Patent Number:	7764140
Patent Number:	8633782
Patent Number:	RE38273
Application Number:	14837512
Patent Number:	9214901
Application Number:	14751586
Patent Number:	9041480
Application Number:	14249972
Patent Number:	9136093
Application Number:	14797347
Application Number:	62212661
Application Number:	13834786
Patent Number:	8781415
Patent Number:	8736377
Patent Number:	8040068
Patent Number:	7872523
Patent Number:	8040141

Property Type	Number
Patent Number:	8264238
Patent Number:	6046641
Patent Number:	5971591
Patent Number:	6718272
Patent Number:	6970700
Patent Number:	5810982
Patent Number:	5717293
Patent Number:	6449568
Patent Number:	6708123
Patent Number:	6020794
Patent Number:	8344801
Patent Number:	6469919
Patent Number:	6618276
Patent Number:	6885567
Patent Number:	7180758
Patent Number:	7397676
Patent Number:	6657394
Patent Number:	6459067
Patent Number:	6700092
Patent Number:	6778921
Patent Number:	6765469
Patent Number:	6627464
Patent Number:	6522121
Patent Number:	6559650
Patent Number:	6788040
Patent Number:	6879140
Patent Number:	RE39051
Patent Number:	6417732
Patent Number:	7467027
Patent Number:	8037896
Patent Number:	8997791
Patent Number:	7463991
Patent Number:	7369920
Application Number:	14180063
Application Number:	62212212
Application Number:	14304463
Application Number:	14209216
Application Number:	13354988

Property Type	Number
Application Number:	14205030
Application Number:	14194092
Patent Number:	6595049
Patent Number:	6446504
Patent Number:	6186177
Patent Number:	6955072
Patent Number:	7073771
Patent Number:	6986359
Patent Number:	7072743
Patent Number:	7120542
Patent Number:	7000465
Patent Number:	RE39466
Patent Number:	7628860
Patent Number:	7829353
Patent Number:	7615120
Patent Number:	7121139
Patent Number:	7628861
Patent Number:	7000463
Patent Number:	7296465
Patent Number:	7174263
Patent Number:	7621290
Patent Number:	7387135
Patent Number:	6505812
Patent Number:	6418954
Patent Number:	6349744
Patent Number:	6631334
Application Number:	14265804
Patent Number:	6918295
Patent Number:	7107834
Patent Number:	6813943
Patent Number:	6857323
Patent Number:	8793082
Patent Number:	9127361
Patent Number:	8997686
Application Number:	13035534
Patent Number:	8150553
Patent Number:	8738187
Patent Number:	5693880

Property Type	Number
Patent Number:	5824894
Patent Number:	5966499
Patent Number:	5868159
Patent Number:	6868862
Patent Number:	6868723
Patent Number:	7007707
Patent Number:	6766260
Patent Number:	6668642
Patent Number:	6668641
Patent Number:	6779394
Patent Number:	6712084
Patent Number:	6932098
Patent Number:	7424346
Patent Number:	7809473
Patent Number:	6687635
Patent Number:	6725166
Patent Number:	7136767
Patent Number:	6948508
Patent Number:	6810308
Patent Number:	7552015
Patent Number:	7004191
Patent Number:	7474968
Patent Number:	7673645
Patent Number:	7461549
Patent Number:	8079383
Patent Number:	7706925
Patent Number:	7757554
Patent Number:	7891228
Application Number:	14269778
Patent Number:	8790464
Patent Number:	8386083
Patent Number:	6508631
Patent Number:	6781119
Application Number:	14596737
Application Number:	13626432
Patent Number:	8689822
Application Number:	13344387
Patent Number:	8849466

Property Type	Number
Patent Number:	9310294
Patent Number:	8645082
Patent Number:	6192287
Application Number:	14511842
Patent Number:	7436234
Patent Number:	7546208
Patent Number:	5900633
Patent Number:	6161054
Patent Number:	7372573
Patent Number:	7595887
Patent Number:	6485872
Application Number:	14637094
Patent Number:	8462347
Patent Number:	9001335
Patent Number:	8083359
Application Number:	14518974
Patent Number:	8896839
Application Number:	14753366
Patent Number:	6938493
Application Number:	14582750
Application Number:	62191140
Application Number:	14795729
Application Number:	14994969
Patent Number:	8928329
Patent Number:	7360429
Application Number:	14072188
Patent Number:	7847559
Patent Number:	7249516
Patent Number:	8947098
Application Number:	14377449
Application Number:	14224927
Patent Number:	6025723
Patent Number:	8648604
Application Number:	14174386
Patent Number:	6046456
Patent Number:	5801535
Patent Number:	6023979
Application Number:	14101207

Property Type	Number
Patent Number:	8887575
Patent Number:	6581471
Patent Number:	7252011
Patent Number:	6588280
Patent Number:	6993973
Patent Number:	7201057
Patent Number:	7890220
Patent Number:	7141447
Patent Number:	7316163
Patent Number:	7137301
Patent Number:	7624643
Patent Number:	7204150
Patent Number:	7284439
Patent Number:	7389697
Application Number:	14537593
Patent Number:	9000364
Patent Number:	9322738
Patent Number:	9040907
Application Number:	14384782
Patent Number:	8586918
Application Number:	14500820
Application Number:	14536102
Application Number:	14795706
Patent Number:	7313966
Patent Number:	7921719
Patent Number:	6688321
Patent Number:	8704538
Patent Number:	5808206
Patent Number:	5932332
Patent Number:	5811685
Patent Number:	5942692
Patent Number:	6945119
Patent Number:	7124640
Patent Number:	7000479
Patent Number:	7451654
Patent Number:	5920015
Patent Number:	6122976
Patent Number:	6439056

Property Type	Number
Patent Number:	5911162
Patent Number:	5965821
Patent Number:	6029525
Patent Number:	6227056
Patent Number:	6105436
Patent Number:	6443015
Patent Number:	6568274
Patent Number:	6772640
Patent Number:	6198105
Patent Number:	7768267
Patent Number:	6612176
Patent Number:	7030619
Patent Number:	8686733
Patent Number:	7418869
Patent Number:	7429863
Patent Number:	7295015
Patent Number:	8333118
Patent Number:	8561471
Application Number:	14616017
Patent Number:	6735845
Patent Number:	7656165
Patent Number:	6081121
Patent Number:	7757563
Patent Number:	7706995
Patent Number:	8679287
Patent Number:	7477996
Patent Number:	7962294
Patent Number:	7704392
Patent Number:	6197119
Patent Number:	6238514
Patent Number:	6361607
Patent Number:	6488745
Patent Number:	7076920
Patent Number:	5827370
Patent Number:	6894254
Patent Number:	6672171
Patent Number:	6562109
Patent Number:	6895178

Property Type	Number
Patent Number:	D472881
Patent Number:	6756785
Patent Number:	6909975
Patent Number:	7455720
Application Number:	14794550
Patent Number:	6790258
Patent Number:	7871587
Application Number:	14263779
Patent Number:	7932480
Patent Number:	8541716
Patent Number:	7693687
Patent Number:	7219255
Patent Number:	7787477
Patent Number:	6239429
Patent Number:	8415942
Patent Number:	8278909
Patent Number:	8796620
Patent Number:	8796638
Patent Number:	8450681
Patent Number:	7151976
Patent Number:	9069345
Patent Number:	8412356
Patent Number:	8086327
Patent Number:	8577480
Patent Number:	7809450
Application Number:	14273669
Patent Number:	8244498
Patent Number:	8494798
Patent Number:	8271103
Patent Number:	8725469
Application Number:	13441513
Application Number:	14158914
Patent Number:	8763987
Patent Number:	9314824
Application Number:	14994668
Application Number:	14995727
Patent Number:	7032882
Patent Number:	6089537

Property Type	Number
Patent Number:	6161576
Patent Number:	7278444
Patent Number:	7643909
Patent Number:	6439255
Patent Number:	6328051
Patent Number:	6409149
Patent Number:	7428913
Patent Number:	6863256
Application Number:	62320718
Patent Number:	9200711
Patent Number:	9206919
Patent Number:	7950294
Patent Number:	8172197
Patent Number:	8196893
Patent Number:	8671987
Patent Number:	8241596
Patent Number:	9133960
Patent Number:	6776394
Patent Number:	9086112
Patent Number:	9040914
Patent Number:	8736825
Patent Number:	8902939
Patent Number:	8942266
Patent Number:	8928102
Patent Number:	8857585
Patent Number:	8807515
Patent Number:	8755133
Patent Number:	8651447
Patent Number:	8633440
Patent Number:	8520327
Patent Number:	8482868
Patent Number:	8441748
Patent Number:	8445299
Patent Number:	8441630
Patent Number:	6517060
Patent Number:	6520283
Patent Number:	8400623
Patent Number:	8276873

Property Type	Number
Patent Number:	8231098
Patent Number:	8218587
Patent Number:	8196891
Patent Number:	8194076
Patent Number:	8072587
Patent Number:	8004527
Patent Number:	7982980
Patent Number:	7962046
Patent Number:	7855845
Patent Number:	7751461
Patent Number:	7750608
Patent Number:	7688528
Patent Number:	7653267
Patent Number:	7528364
Patent Number:	7496271
Patent Number:	7495849
Patent Number:	7463397
Patent Number:	7450300
Patent Number:	7440176
Patent Number:	7423364
Patent Number:	7400802
Patent Number:	7388890
Patent Number:	7388354
Patent Number:	7376525
Patent Number:	7365665
Patent Number:	7330657
Patent Number:	7323804
Patent Number:	7321175
Patent Number:	7320455
Patent Number:	7292387
Patent Number:	7286577
Patent Number:	7280568
Patent Number:	7271523
Patent Number:	7235902
Patent Number:	7230960
Patent Number:	7173950
Patent Number:	7122989
Patent Number:	7092644

Property Type	Number
Patent Number:	7016389
Patent Number:	7016107
Patent Number:	6996506
Patent Number:	6966535
Patent Number:	6940879
Patent Number:	6930822
Patent Number:	6922419
Patent Number:	6911763
Patent Number:	6891876
Patent Number:	6891601
Patent Number:	6890474
Patent Number:	6853655
Patent Number:	6816536
Patent Number:	6788726
Patent Number:	6707231
Patent Number:	6697390
Patent Number:	6642680
Patent Number:	6619611
Patent Number:	6614829
Patent Number:	6614601
Patent Number:	6611375
Patent Number:	6608847
Patent Number:	6606340
Patent Number:	6598545
Patent Number:	6597449
Patent Number:	6587264
Patent Number:	6568666
Patent Number:	6511035
Patent Number:	6504858
Patent Number:	6476537
Patent Number:	6462878
Patent Number:	6438461
Patent Number:	6394407
Patent Number:	6389198
Patent Number:	6301049
Patent Number:	6246706
Patent Number:	6198580
Patent Number:	6185235

Property Type	Number
Patent Number:	6157503
Patent Number:	6067197
Patent Number:	5999318
Patent Number:	5995521
Patent Number:	5907570
Patent Number:	5852519
Patent Number:	5847885
Patent Number:	5835513
Patent Number:	5812583
Patent Number:	5737132
Patent Number:	5694257
Patent Number:	6741786
Patent Number:	6810161
Application Number:	62327362
Application Number:	15025261
Application Number:	14282999
Application Number:	62308863
Application Number:	62256611
Application Number:	62294832
Application Number:	14764565
Application Number:	62249188
Application Number:	62239937
Application Number:	62220337
Application Number:	14440783
Application Number:	14582925
Application Number:	14695009
Application Number:	62184978
Application Number:	14125718
Application Number:	13819695
Application Number:	14649793
Application Number:	14765074
Application Number:	14791570
Application Number:	14182019
Application Number:	62183155
Application Number:	14253087
Application Number:	14559829
Application Number:	14501460
Application Number:	14484210

Property Type	Number
Application Number:	14147400
Application Number:	13609134
Application Number:	62366594
Application Number:	15236661
Application Number:	15244264
Application Number:	15166777
Application Number:	15162960
Application Number:	62345180
Application Number:	62330308
Application Number:	15153915
Application Number:	62333989
Application Number:	15268583
Application Number:	15209639
Application Number:	62370204
Application Number:	62346430
Application Number:	15035463
Application Number:	15343975
Application Number:	15380682
Application Number:	62433320
Application Number:	62420953
Application Number:	15297661
Application Number:	15290684
Application Number:	15008396
Application Number:	15338383
Application Number:	62430862
Application Number:	62429830
Application Number:	15353742
Application Number:	15353744
Application Number:	15353770
Application Number:	15280894
Application Number:	15280904
Application Number:	15421805
Application Number:	15419047
Application Number:	15452896
Application Number:	15423267
Application Number:	15404457
Application Number:	15400635
Application Number:	15460611

Property Type	Number
Application Number:	15369772
Application Number:	15320718
Application Number:	15328871
Application Number:	15315325
Application Number:	15315711
Application Number:	15429584
Application Number:	62446731
Application Number:	62451748
Application Number:	62461323
Application Number:	62490409
Application Number:	15601971
Application Number:	15537739
Application Number:	15605055
Application Number:	62504197
Application Number:	15499064
Application Number:	15621241
Application Number:	62488160
Application Number:	15484072
Application Number:	15478623
Application Number:	15581875
Application Number:	15602758
Application Number:	15713570
Application Number:	62539377
Application Number:	15661892
Application Number:	62564995
Application Number:	62557364
Application Number:	62551637
Application Number:	15646017
Application Number:	15643060
Application Number:	15705643
Application Number:	15658470
Application Number:	15712916
Application Number:	15846922
Application Number:	62567505
Application Number:	15834625
Application Number:	15808471
Application Number:	15574384
Application Number:	15738844

Property Type	Number
Application Number:	15736280
Application Number:	15833906
Application Number:	15829875
Application Number:	15850349
Application Number:	15880127
Application Number:	15880842
Application Number:	62637368
Application Number:	62637380
Application Number:	15940920
Application Number:	15940924
Application Number:	62646867
Application Number:	15876189
Application Number:	15887447
Application Number:	62647155
Application Number:	15952168
Application Number:	15952482
Application Number:	15955266
Application Number:	15973190
Application Number:	15974947
Application Number:	15975473
Application Number:	62677386
Application Number:	16005761
Application Number:	62684820
Application Number:	62690202
Application Number:	16020415
Application Number:	62701244
Application Number:	62724368
Application Number:	16112055
Application Number:	16115692
Application Number:	62717634
Application Number:	16124669
Application Number:	16101370
Application Number:	16035551
Patent Number:	6204464
Patent Number:	6407363
Patent Number:	6430465
Patent Number:	6433301
Patent Number:	6870949

Property Type	Number
Patent Number:	6901160
Patent Number:	7557594
Patent Number:	8350187
Patent Number:	6297541
Patent Number:	5990650
Patent Number:	5998759
Patent Number:	6000801
Patent Number:	6025256
Patent Number:	6040705
Patent Number:	6098031
Patent Number:	6100815
Patent Number:	6144118
Patent Number:	6160910
Patent Number:	6181728
Patent Number:	6252197
Patent Number:	6255621
Patent Number:	6281471
Patent Number:	6294747
Patent Number:	6300590
Patent Number:	6337462
Patent Number:	6339604
Patent Number:	6340806
Patent Number:	6341029
Patent Number:	6348802
Patent Number:	6366357
Patent Number:	6381259
Patent Number:	6424735
Patent Number:	6452686
Patent Number:	6462306
Patent Number:	6483071
Patent Number:	6489588
Patent Number:	6495791
Patent Number:	6496292
Patent Number:	6501061
Patent Number:	6534743
Patent Number:	6559412
Patent Number:	6573473
Patent Number:	6574250

Property Type	Number
Patent Number:	6580054
Patent Number:	6586707
Patent Number:	6593542
Patent Number:	6606403
Patent Number:	6633338
Patent Number:	6639177
Patent Number:	6660963
Patent Number:	6662063
Patent Number:	6676878
Patent Number:	6678058
Patent Number:	6703582
Patent Number:	6706998
Patent Number:	6706999
Patent Number:	6714028
Patent Number:	6724489
Patent Number:	6727458
Patent Number:	6744228
Patent Number:	6763132
Patent Number:	6777645
Patent Number:	6781090
Patent Number:	6781093
Patent Number:	6784399
Patent Number:	6791059
Patent Number:	6791060
Patent Number:	6806544
Patent Number:	6816294
Patent Number:	6831936
Patent Number:	6875950
Patent Number:	6878899
Patent Number:	6879403
Patent Number:	6887804
Patent Number:	6911622
Patent Number:	6919532
Patent Number:	6947454
Patent Number:	6949449
Patent Number:	6960739
Patent Number:	6960813
Patent Number:	6989508

Property Type	Number
Patent Number:	7015418
Patent Number:	7019891
Patent Number:	7027199
Patent Number:	7067763
Patent Number:	7112518
Patent Number:	7119351
Patent Number:	7119566
Patent Number:	7126746
Patent Number:	7133182
Patent Number:	7133186
Patent Number:	7133187
Patent Number:	7133188
Patent Number:	7139294
Patent Number:	7148447
Patent Number:	7161346
Patent Number:	7169688
Patent Number:	7173432
Patent Number:	7176407
Patent Number:	7181058
Patent Number:	7192846
Patent Number:	7227098
Patent Number:	7238913
Patent Number:	7241669
Patent Number:	7244906
Patent Number:	7245412
Patent Number:	7259354
Patent Number:	7289549
Patent Number:	7297972
Patent Number:	7301981
Patent Number:	7315038
Patent Number:	7345448
Patent Number:	7348516
Patent Number:	7358157
Patent Number:	7363180
Patent Number:	7378337
Patent Number:	7382389
Patent Number:	7394476
Patent Number:	7396706

Property Type	Number
Patent Number:	7402774
Patent Number:	7402994
Patent Number:	7407861
Patent Number:	7423818
Patent Number:	7425471
Patent Number:	7428253
Patent Number:	7435927
Patent Number:	7437207
Patent Number:	7443179
Patent Number:	7443893
Patent Number:	7457329
Patent Number:	7466466
Patent Number:	7469831
Patent Number:	7482551
Patent Number:	7494900
Patent Number:	7538564
Patent Number:	7544304
Patent Number:	7563695
Patent Number:	7582848
Patent Number:	7589869
Patent Number:	7605343
Patent Number:	7616669
Patent Number:	7619646
Patent Number:	7629234
Patent Number:	7633034
Patent Number:	7638731
Patent Number:	7667159
Patent Number:	7667889
Patent Number:	7687740
Patent Number:	7704033
Patent Number:	7705268
Patent Number:	7724787
Patent Number:	7725024
Patent Number:	7738166
Patent Number:	7742511
Patent Number:	7750268
Patent Number:	7750653
Patent Number:	7760331

Property Type	Number
Patent Number:	7787159
Patent Number:	7796654
Patent Number:	7796655
Patent Number:	7813389
Patent Number:	7817682
Patent Number:	7817685
Patent Number:	7817686
Patent Number:	7819235
Patent Number:	7834293
Patent Number:	7838794
Patent Number:	7839138
Patent Number:	7858901
Patent Number:	7862207
Patent Number:	7871903
Patent Number:	7880798
Patent Number:	7886437
Patent Number:	7886449
Patent Number:	7887712
Patent Number:	7888620
Patent Number:	7888949
Patent Number:	7889322
Patent Number:	7903697
Patent Number:	7905471
Patent Number:	7919646
Patent Number:	7923306
Patent Number:	7924033
Patent Number:	7929857
Patent Number:	7935941
Patent Number:	7940453
Patent Number:	7943862
Patent Number:	7947575
Patent Number:	7955905
Patent Number:	7955906
Patent Number:	7968820
Patent Number:	7977213
Patent Number:	7977601
Patent Number:	7982161
Patent Number:	7985942

Property Type	Number
Patent Number:	7989320
Patent Number:	8026158
Patent Number:	8048774
Patent Number:	8049135
Patent Number:	8084896
Patent Number:	8090551
Patent Number:	8093532
Patent Number:	8106329
Patent Number:	8110775
Patent Number:	8124911
Patent Number:	8132966
Patent Number:	8134760
Patent Number:	8148211
Patent Number:	8173931
Patent Number:	8178906
Patent Number:	8193468
Patent Number:	8198566
Patent Number:	8208506
Patent Number:	8217304
Patent Number:	8231323
Patent Number:	8235643
Patent Number:	8237080
Patent Number:	8248688
Patent Number:	8253066
Patent Number:	8265106
Patent Number:	8269137
Patent Number:	8278595
Patent Number:	8288679
Patent Number:	8288684
Patent Number:	8320424
Patent Number:	8329600
Patent Number:	8379204
Patent Number:	8379679
Patent Number:	8383029
Patent Number:	8383984
Patent Number:	8389895
Patent Number:	8394301
Patent Number:	8404998

Property Type	Number
Patent Number:	8450640
Patent Number:	8451873
Patent Number:	8461479
Patent Number:	8461482
Patent Number:	8497450
Patent Number:	8508843
Patent Number:	8526473
Patent Number:	8593722
Patent Number:	8599890
Patent Number:	8604380
Patent Number:	8624157
Patent Number:	8648277
Patent Number:	8665515
Patent Number:	8680430
Patent Number:	8694148
Patent Number:	8723075
Patent Number:	8723076
Patent Number:	8729427
Patent Number:	8733535
Patent Number:	8816246
Patent Number:	8842362
Patent Number:	8847110
Patent Number:	8847112
Patent Number:	8847113
Patent Number:	8878095
Patent Number:	8890025
Patent Number:	8894868
Patent Number:	8901947
Patent Number:	8958705
Patent Number:	8960686
Patent Number:	8964801
Patent Number:	8970238
Patent Number:	9023461
Patent Number:	9029731
Patent Number:	9036247
Patent Number:	9120180
Patent Number:	9157876
Patent Number:	9221124

Property Type	Number
Patent Number:	9227868
Patent Number:	9242312
Patent Number:	9259802
Patent Number:	9261465
Patent Number:	9266192
Patent Number:	9269035
Patent Number:	9289858
Patent Number:	9304090
Patent Number:	9346130
Patent Number:	9463528
Patent Number:	9486877
Patent Number:	9527159
Patent Number:	9568167
Patent Number:	9594937
Patent Number:	9610653
Patent Number:	9636713
Patent Number:	9724782
Patent Number:	9776277
Patent Number:	9776906
Patent Number:	9823101
Patent Number:	9828277
Patent Number:	9828278
Patent Number:	9931713
Patent Number:	9939624
Patent Number:	9981357
Patent Number:	9983562
Patent Number:	RE41924
Application Number:	12413350
Application Number:	13850168
Application Number:	14033368
Application Number:	14059029
Application Number:	14135097
Application Number:	14490523
Application Number:	14707950
Application Number:	15019221
Application Number:	15047279
Application Number:	15055037
Application Number:	15180709

Property Type	Number
Application Number:	15182179
Application Number:	15233364
Application Number:	15398171
Application Number:	15966615
Application Number:	15691344
Application Number:	16154669
Application Number:	62770340
Application Number:	16205064
Application Number:	16164892
Application Number:	16168812
Application Number:	16192223
Application Number:	62800441
Application Number:	16289203
Patent Number:	10112263
Application Number:	62823454
Application Number:	62808742
Application Number:	62799218
Application Number:	16318092
Application Number:	62788216
Application Number:	62746364
Application Number:	62745777
Application Number:	29666312
Application Number:	62742694
Application Number:	62718236
Application Number:	62711308
Application Number:	16067693
Application Number:	16067711
Application Number:	16020592
Application Number:	62688484
Application Number:	62680856
Application Number:	15780072
Application Number:	62824592
Application Number:	62825777
Application Number:	16273595
Application Number:	16297799
Application Number:	16261900
Application Number:	62838188
Application Number:	16468557

Property Type	Number
Application Number:	62832064
Application Number:	62836461
Application Number:	16400792
Application Number:	62854579
Application Number:	62859572
Application Number:	16438827
Application Number:	62837163
Application Number:	16452716
Application Number:	16415313
Application Number:	16397436
Application Number:	16376861
Application Number:	16406339
Application Number:	62831138
Application Number:	16408752
Application Number:	62855136
Application Number:	16377501
Application Number:	16377522
Application Number:	16553921
Application Number:	16478625
Application Number:	16492919
Application Number:	62907891
Application Number:	16557189
Application Number:	16505422
Application Number:	16553033
Application Number:	16509088
Application Number:	16506555
Application Number:	62886279
Application Number:	62926701
Application Number:	16672237
Application Number:	16711940
Application Number:	62926148
Application Number:	62930287
Application Number:	16713713
Application Number:	16710412
Application Number:	16724844
Application Number:	16778567
Application Number:	62970648
Application Number:	62983397

Property Type	Number
Application Number:	29564998
Application Number:	16800363
Application Number:	16742172
Application Number:	16823715
Application Number:	16825994
Application Number:	16849871
Application Number:	16842515
Application Number:	16851644
Application Number:	16881390
Application Number:	16898016
Application Number:	16881458
Application Number:	16887346
Application Number:	16905377
Application Number:	63026564
Application Number:	63024999
Application Number:	16854207
Application Number:	16986680
Application Number:	16990396
Application Number:	16993775
Application Number:	17005560
Application Number:	16992400
Application Number:	63054931
Application Number:	17017402
Application Number:	16957812
Application Number:	17073709
Application Number:	63110818
Application Number:	17111700
Application Number:	63116599
Application Number:	17102598
Application Number:	16953923
Application Number:	63114287
Application Number:	17107146
Application Number:	17119804
Application Number:	63130257
Application Number:	17070039
Application Number:	63131921
Application Number:	63122573
Application Number:	63124443

Property Type	Number
Application Number:	63113378
Application Number:	63092203
Application Number:	63130975
Application Number:	63145178
Application Number:	17154698
Application Number:	63157229
Application Number:	17185259
Application Number:	16464551
Application Number:	16499511
Application Number:	16619875
Application Number:	16621630
Application Number:	16636605
Application Number:	17047254
Application Number:	17272155
Application Number:	17273695
Application Number:	17272611
Application Number:	17276736
Application Number:	63168028
Application Number:	63194472
Application Number:	17322549
Application Number:	17232950
Application Number:	17342341
Application Number:	17237913
Application Number:	17290198
Application Number:	63213075
Application Number:	63178108
Application Number:	17326664
Application Number:	17354680
Application Number:	17396901
Application Number:	17391724
Application Number:	17365479
Application Number:	63231861
Application Number:	17406378
Application Number:	17486139
Application Number:	17599756
Application Number:	63245631
Application Number:	17644704
Application Number:	17502666

Property Type	Number
Application Number:	17453450
Application Number:	17452030
Application Number:	63272535
Application Number:	17452953
Application Number:	63278837
Application Number:	17455626
Application Number:	63289438
Application Number:	17566274
Application Number:	17643866
Application Number:	17647239
Application Number:	17651751
Application Number:	63298825
Application Number:	17590874
Application Number:	17583712
Application Number:	63302931
Application Number:	17656177
Application Number:	63302887
Application Number:	63304349
Application Number:	17633828
Application Number:	63314437
Application Number:	63314438

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 212.318.6000
Email: JeffreyNegron@PaulHastings.com
Correspondent Name: JEFFREY NEGRON
Address Line 1: PAUL HASTINGS LLP
Address Line 2: 200 PARK AVENUE
Address Line 4: NEW YORK, NEW YORK 10166

NAME OF SUBMITTER:	JEFFREY M. NEGRON
SIGNATURE:	/s/ Jeffrey M. Negron
DATE SIGNED:	02/09/2023

Total Attachments: 54
source=MKS - Patent Release - Barclays_TL.1#page1.tif
source=MKS - Patent Release - Barclays_TL.1#page2.tif
source=MKS - Patent Release - Barclays_TL.1#page3.tif
source=MKS - Patent Release - Barclays_TL.1#page4.tif

source=MKS - Patent Release - Barclays_TL.3#page17.tif

source=MKS - Patent Release - Barclays_TL.3#page18.tif

RELEASE OF SECURITY INTEREST IN PATENTS

This **RELEASE OF SECURITY INTEREST IN INTELLECTUAL PROPERTY** (this “Release”) is dated as of August 17, 2022 and delivered by Barclays Bank PLC, in its capacity as collateral agent pursuant to the Credit Agreement (in such capacity, the “Agent”), in favor of MKS Instruments, Inc., Electro Scientific Industries, Inc. and Newport Corporation (the “Grantors” and each a “Grantor”). All capitalized terms used but not otherwise defined herein have the meanings given to them in the Patent Security Agreements (as defined below) or the Security Agreement (as defined below), as applicable.

WHEREAS, pursuant to that certain Security Agreement, dated as of April 29, 2016 (as amended, restated, amended and restated, supplemented or otherwise modified from time to time, the “Security Agreement”) among the Grantors, the Agent and certain other parties thereto, in order to secure payments of certain Secured Obligations (as defined in the Security Agreement), the Grantors assigned, pledged and granted to the Agent, for the ratable benefit of the Secured Parties, a continuing security interest in all of each Grantor’s right, title and interest in, to and under all of its Patents including, without limitation, the patents and patent applications listed on Schedule I hereto, in each case to the extent the same constitute Collateral (as defined in the Security Agreement) (the “Intellectual Property”).

WHEREAS, the following Patent Security Agreements evidencing the security interest granted by the Grantors in favor the Agent were recorded with the Patent Division of the United States Patent and Trademark Office on May 4, 2016, at Reel/Frame 038663/0139, December 06, 2016, at Reel/Frame 040707/0904, February 16, 2017, at Reel/Frame 041271/0039, April 17, 2017, at Reel/Frame 042026/0800, November 15, 2017, at Reel/Frame 044455/0355, February 13, 2018, at Reel/Frame 045315/0121, April 26, 2018 at Reel/Frame 046026/0443, July 27, 2018, at Reel/Frame 047254/0731, November 30, 2018, at Reel/Frame 048156/0181, December 18, 2018, at Reel/Frame 047952/0086, February 1, 2019, at Reel/Frame 048211/0227, April 25, 2019, at Reel/Frame 050335/0027, August 07, 2019, at Reel/Frame 049987/0820, October 30, 2019, at Reel/Frame 050872/0656, January 23, 2020, at Reel/Frame 051689/0973, April 15, 2020, at Reel/Frame 052410/0234, July 16, 2020, at Reel/Frame 053235/0841, October 13, 2020, at Reel/Frame 054065/0445, January 14, 2021 at Reel/Frame 055006/0492, January 21, 2021, at Reel/Frame 055060/0432, April 29, 2021, at Reel/Frame 056101/0652, July 17, 2021, at Reel/Frame 056899/0051, October 28, 2021, at Reel/Frame 057953/0109, February 23, 2022, at Reel/Frame 059220/0637 and April 26, 2022, at Reel/Frame 059804/0001 (the “Patent Security Agreements”).

WHEREAS, the Agent hereby acknowledges the full payment and performance of the Secured Obligations, and as a result desires to terminate and release its security interest in the Intellectual Property.

NOW, THEREFORE, for and in consideration of the foregoing, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Agent, on behalf of itself and the Secured Parties, hereby terminates, releases and forever discharges any and all security interests it has in the Intellectual Property and any other Patents (as defined in the Patent Security Agreements), terminates the Patent Security Agreements, and retransfers and reassigns to the Grantors without representation or warranty of any kind, express or implied, free and clear of any claims by the Agent, all right, title or interest of the Agent in, to or under the Intellectual Property and any other Patents of the Grantors.

This Release shall be governed by and construed in accordance with the laws of the State of New York.

IN WITNESS WHEREOF, the undersigned has executed this Termination and Release of Security Interest in Patents by its duly authorized officer as of the date first above written.

BARCLAYS BANK PLC,
as Collateral Agent

DocuSigned by:
Koruthu Mathew
By: _____
Name: Koruthu Mathew
Title: VP

SCHEDULE I
to
RELEASE OF SECURITY INTEREST IN TRADEMARKS

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139			
Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	13/106920	8749939	Method and system for shoot- through protection
MKS Instruments, Inc.	14/742402		Toroidal plasma channel with varying cross-section areas along the channel
MKS Instruments, Inc.	13/153649	9039985	Ozone generator
MKS Instruments, Inc.	14/705439		Ozone generator
MKS Instruments, Inc.	14/723114		Solid state microwave generator and power amplifier
MKS Instruments, Inc.	14/212398		Toroidal plasma abatement apparatus
MKS Instruments, Inc.	13/421346	8882885	System to remove dissolved gases selectively from liquids
MKS Instruments, Inc.	13/211892	8520413	Adjustable resonant buck converter
MKS Instruments, Inc.	13/314347		Gas injector for plasma applicator
MKS Instruments, Inc.	14/616431		Metastable ignition of plasma
MKS Instruments, Inc.	14/616089		Microplasma ignition of plasma
MKS Instruments, Inc.	13/117831	8339607	Ozone concentration sensor
MKS Instruments, Inc.	10/799331	7502114	Ozone concentration sensor
MKS Instruments, Inc.	12/397155	8085401	Ozone concentration sensor
MKS Instruments, Inc.	11/077555	7616462	Control Circuit for switching power supply
MKS Instruments, Inc.	11/269917	7569790	Method and apparatus for processing metal bearing gases
MKS Instruments, Inc.	12/511785	8124906	Method and apparatus for processing metal bearing gases
MKS Instruments, Inc.	13/336616	8779322	Method and apparatus for processing metal bearing gases
MKS Instruments, Inc.	12/963209	8624501	Measuring and controlling parameters of a plasma generator
MKS Instruments, Inc.	14/843412		Direct three phase parallel resonant inverter for reactive gas generator applications
MKS Instruments, Inc.	08/883281	6150628	Toroidal low- field reactive gas source
MKS Instruments, Inc.	09/659881	6486431	Toroidal low- field reactive gas source
MKS Instruments, Inc.	09/804650	6815633	Toroidal low- field reactive gas source
MKS Instruments, Inc.	10/143070	6664497	Toroidal low- field reactive gas source
MKS Instruments, Inc.	10/143061	6559408	Toroidal low- field reactive gas source
MKS Instruments, Inc.	10/689165	7161112	Toroidal low- field reactive gas source
MKS Instruments, Inc.	09/774165	6924455	Toroidal low- field reactive gas source
MKS Instruments, Inc.	10/837912	7166816	Toroidal low field reactive gas source-
MKS Instruments, Inc.	11/636891	7541558	Toroidal low- field reactive gas source
MKS Instruments, Inc.	09/502087	6388226	Toroidal low- field reactive gas source
MKS Instruments, Inc.	09/953763	6552296	Toroidal low- field reactive gas source

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	08/999937	6059517	End effector assembly for inclusion in a system for producing uniform deposits on a wafer
MKS Instruments, Inc.	10/938455	6948504	Ozonated water flow and concentration control apparatus and method
MKS Instruments, Inc.	11/207989	7264006	Ozonated water flow and concentration control apparatus and method
MKS Instruments, Inc.	11/835161	7622037	Ozonated water flow and concentration control apparatus and method
MKS Instruments, Inc.	10/133237	6805791	Ozonated water flow and concentration control apparatus and method
MKS Instruments, Inc.	09/019573	6163006	Permanent magnet ecr plasma source with magnetic field optimization
MKS Instruments, Inc.	08/770316	5869802	Plasma producing structure
MKS Instruments, Inc.	09/153193	6225592	Method and apparatus for launching microwave energy into a plasma processing chamber
MKS Instruments, Inc.	09/960227	6887339	Rf power supply with integrated matching network
MKS Instruments, Inc.	09/701854	6786976	Method and system for cleaning semiconductor elements
MKS Instruments, Inc.	10/892539	7067017	Method and system for cleaning semiconductor elements
MKS Instruments, Inc.	10/417408	6872909	Toroidal low- field reactive gas and plasma source having a dielectric vacuum vessel
MKS Instruments, Inc.	11/058620	7501600	Toroidal low- field reactive gas and plasma source having a dielectric vacuum vessel
MKS Instruments, Inc.	11/684916	7659489	Toroidal low- field reactive gas and plasma source having a dielectric vacuum vessel
MKS Instruments, Inc.	12/394904	8692466	Method and apparatus of providing power to ignite and sustain a plasma in a reactive
MKS Instruments, Inc.	12/794470	8888982	Gas generator reduction of copper or trace metal contaminants in plasma electrolytic oxidation coatings
MKS Instruments, Inc.	11/873776	7731161	Devices, systems and methods for carbonation of deionized water
MKS Instruments, Inc.	12/792470	8448925	Devices, systems and methods for carbonation of deionized water
MKS Instruments, Inc.	13/871626	8727323	Devices, systems and methods for carbonation of deionized water
MKS Instruments, Inc.	12/738314	9275839	Toroidal plasma chamber for high gas flow rate process
MKS Instruments, Inc.	11/268692	7353771	Method and apparatus of providing power to ignite and sustain a plasma in a reactive gas generator
MKS Instruments, Inc.	13/528580	8641978	Power supply including transformer- less high voltage power oscillators for ozone generation
MKS Instruments, Inc.	11/503662	8226900	Power supply including transformer- less high voltage power oscillators for ozone generation

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	11/482508	7892502	Ozone system for multi- chamber tools
MKS Instruments, Inc.	13/008641	8480862	Ozone system for multi- chamber tools
MKS Instruments, Inc.	11/541388	8053700	Applicators and cooling systems for a plasma device
MKS Instruments, Inc.	14/226994		Microwave plasma applicator with improved power uniformity
MKS Instruments, Inc.	14/645837		Microwave plasma applicator with improved power uniformity
MKS Instruments, Inc.	13/836842	9056262	Pressure-less ozonized di- water (di03) recirculation reclaim sysem
MKS Instruments, Inc.	14/710255		Pressure-less ozonized di- water (di03) recirculation reclaim sysem
MKS Instruments, Inc.	14/990777		Method and apparatus for a directly electrically heated flow- through chemical reactor
MKS Instruments, Inc.	13/432415	9302912	Compact configurable power supply for energizing ozone- producing cells
MKS Instruments, Inc.	15/056330		Compact configurable power supply for energizing ozone- producing cells
MKS Instruments, Inc.	13/431521	8680777	A versatile zero-voltage switch resonant inverter for industrial dielectric barrier discharge generator applications
MKS Instruments, Inc.	10/313516	7238266	Method and apparatus for fluorine generation and recirculation
MKS Instruments, Inc.	11/639680	7969096	Inductively- coupled plasma source
MKS Instruments, Inc.	14/978091		Method and apparatus for processing dielectric materials
MKS Instruments, Inc.	11/411005	7620516	Versatile semiconductor manufacturing controller with statistically repeatable response times
MKS Instruments, Inc.	09/847937	7072985	Method and apparatus for two phase structured message to tagged message translation
MKS Instruments, Inc.	11/479151	7725606	Method and apparatus for two phase structured message to tagged message translation
MKS Instruments, Inc.	09/935213	7200671	Method and apparatus for monitoring host to tool communications
MKS Instruments, Inc.	11/565209	7437204	Method and apparatus for monitoring host to tool communications
MKS Instruments, Inc.	10/617355	6993404	Graphical user interface with process quality indicator
MKS Instruments, Inc.	12/619440	8108174	Versatile semiconductor manufacturing controller with statistically repeatable response times
MKS Instruments, Inc.	11/683218	7630786	Manufacturing process end point detection
MKS Instruments, Inc.	10/401336	6884147	Method for chemical- mechanical polish control in semiconductor manufacturing

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139			
Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	12/947651	8855804	Controlling a discrete-type manufacturing process with a multivariate model
MKS Instruments, Inc.	14/324540		Feedback control and coherency of multiple power supplies in radio frequency power delivery systems for pulsed mode schemes in thin film processing
MKS Instruments, Inc.	13/403656	8773019	Feedback control and coherency of multiple power supplies in radio frequency power delivery systems
MKS Instruments, Inc.	13/222014	8791772	For pulsed mode schemes in thin film processing Lcl high power combiner
MKS Instruments, Inc.	14/444133		Lcl high power combiner
MKS Instruments, Inc.	13/826571		Secondard plasma detection systems and methods
MKS Instruments, Inc.	14/953917		Adaptive periodic waveform controller
MKS Instruments, Inc.	14/828597		Supervisory control of radio frequency (rf) impedance tuning operation
MKS Instruments, Inc.	09/154235	6204657	Temperature compensated closed-loop hall effect current transformer
MKS Instruments, Inc.	10/947397	7304438	Method and apparatus for preventing instabilities in radio- frequency plasma processing
MKS Instruments, Inc.	11/554996	7755300	Method and apparatus for preventing instabilities in radio- frequency plasma processing
MKS Instruments, Inc.	10/623414	7075366	Methods and systems for stabilizing an amplifier
MKS Instruments, Inc.	11/443884	7248113	Methods and systems for stabilizing an
MKS Instruments, Inc.	11/770493	7639015	Amplifier Methods and systems for stabilizing an amplifier
MKS Instruments, Inc.	12/647939	8461842	Methods and systems for stabilizing an amplifier
MKS Instruments, Inc.	10/642505	6995545	Control system for a sputtering system
MKS Instruments, Inc.	10/642509	6967305	Control of plasma transitions in sputter processing systems
MKS Instruments, Inc.	11/216424	8089026	Control of plasma transitions in sputter processing systems
MKS Instruments, Inc.	11/696569	7336511	Power supply control loop with multiple leveling modes
MKS Instruments, Inc.	10/373163	6781317	Methods and apparatus for calibration and metrology for an integrated rf generator system
MKS Instruments, Inc.	082645	6608446	Method and apparatus for radio frequency (rf) metrology
MKS Instruments, Inc.	180273	6995570	Method and apparatus for detecting conditions in paralleled dc power cables
MKS Instruments, Inc.	020836	6064559	Fiber optic position sensor for tuning capacitor
MKS Instruments, Inc.	10/192196	6707255	Multirate processing for metrology of plasma rf source

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	832476	6587019	Dual directional harmonics dissipation system
MKS Instruments, Inc.	835249	6750711	Rf power amplifier stability
MKS Instruments, Inc.	727081	6983215	Rf metrology characterization for field installation and serviceability for the plasma processing industry
MKS Instruments, Inc.	11/164303	9011633	Broadband techniques to reduce the effect or impedance mismatch in plasma chambers
MKS Instruments, Inc.	13/764285	9041292	Phase and frequency control of a radio frequency generator from an external source
MKS Instruments, Inc.	11/108626	7602127	Phase and frequency control of a radio frequency generator from an external source
MKS Instruments, Inc.	12/552603	8110991	Phase and frequency control of a radio frequency generator
MKS Instruments, Inc.	13/241650	8395322	From an external source Phase and frequency control of a radio frequency generator from an external source
MKS Instruments, Inc.	11/115063	8102954	Frequency interference detection and correction
MKS Instruments, Inc.	13/332459	9294136	Frequency interference detection and correction
MKS Instruments, Inc.	10/914046	7506014	Tunable multi- phase offset direct digital synthesizer
MKS Instruments, Inc.	11/627002	7777567	Rf power amplifier stability network
MKS Instruments, Inc.	11/460409	9214909	High reliability rf generator architecture
MKS Instruments, Inc.	11/468119	7548741	Dual logarithmic amplifier phase- magnitude detector
MKS Instruments, Inc.	12/174893		Sputtering system and method including an arc detection system
MKS Instruments, Inc.	12/236716	7863996	Tune range limiter
MKS Instruments, Inc.	12/764145	8890537	Harmonic derived arc detector
MKS Instruments, Inc.	11/675974	7728602	Harmonic derived arc detector
MKS Instruments, Inc.	11/763298	8055203	Multipoint voltage and current probe system
MKS Instruments, Inc.	13/241633	8190380	Multipoint voltage and current probe system
MKS Instruments, Inc.	13/339494	8576013	Power distortion- based servo control systems for frequency tuning rf power sources
MKS Instruments, Inc.	14/044547	9041471	Power distortion- based servo control systems for frequency tuning rf power sources
MKS Instruments, Inc.	13/803170	8952765	System and methods of bimodal automatic power and frequency tuning of rf generators
MKS Instruments, Inc.	13/828628	9291649	On the enhancements of planar based rf sensor technology
MKS Instruments, Inc.	13/222202	8237501	Power amplifier with transistor input mismatching
MKS Instruments, Inc.	13/648317	8581597	Application of wideband sampling for arc detection with a probabilistic model for quantitatively measuring arc events
MKS Instruments, Inc.	12/031171	8264237	Application of wideband sampling for Arc detection with a probabilistic model for quantitatively measuring arc events

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	12/175867	8289029	Application of wideband sampling for arc detection with a probabilistic model for quantitatively measuring arc events
MKS Instruments, Inc.	12/727715	8334700	Application of wideband sampling for arc detection with a probabilistic model for quantitatively measuring arc events
MKS Instruments, Inc.	12/491538	8659335	Method and system for controlling radio frequency power
MKS Instruments, Inc.	14/151321	8912835	Method and system for controlling radio frequency power
MKS Instruments, Inc.	12/760771	8314561	Multi-channel radio frequency (rf) generator
MKS Instruments, Inc.	678993	6524455	Sputtering apparatus using passive arc control system and method
MKS Instruments, Inc.	341078	6863789	Sputtering apparatus using passive arc control system and method
MKS Instruments, Inc.	044912	7261797	Sputtering apparatus using passive Arc control system and method
MKS Instruments, Inc.	686403	6555994	Predictive control of a generator output
MKS Instruments, Inc.	640426	6677828	Method of hot switching a plasma tuner
MKS Instruments, Inc.	11/132551	7477711	Synchronous undersampling for high- frequency voltage and current measurements
MKS Instruments, Inc.	09/107163	6201395	Dual mode gradient coil system
MKS Instruments, Inc.	09/397362	6178102	Power supply for amplifiers
MKS Instruments, Inc.	13/368920	8710926	Radio frequency power delivery system
MKS Instruments, Inc.	11/554979	7764140	Radio frequency power delivery system
MKS Instruments, Inc.	12/786763	8633782	Radio frequency power delivery system
MKS Instruments, Inc.	599608	RE38273	Baseband rf voltage- current probe
MKS Instruments, Inc.	14/837512		Feedback control by rf waveform tailoring for ion energy distribution
MKS Instruments, Inc.	13/834965	9214901	Wideband aft power amplifier systems with frequency- based output transformer impedance balancing
MKS Instruments, Inc.	14/751586		Power supply circuits incorporating transformers for combining of power amplifier outputs and isolation of load voltage clamping circuits
MKS Instruments, Inc.	13/832901	9041480	Virtual rf sensor
MKS Instruments, Inc.	14/249972		Multiple radio frequency power supply control of frequency and phase
MKS Instruments, Inc.	13/761955	9136093	Synchronization of rf pulsing with rf metrology processing and control
MKS Instruments, Inc.	14/797347		Unified rf power delivery single input multiple output control for continuous and pulse mode operation
MKS Instruments, Inc.	62/212661		Plasma rf bias cancellation system
MKS Instruments, Inc.	13/834786		Pulse synchronization by monitoring power in another frequency band

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	13/761679	8781415	Distortion correction Based feedforward control systems and methods for radio frequency power sources
MKS Instruments, Inc.	13/663574	8736377	Rf pulse edge shaping
MKS Instruments, Inc.	12/366274	8040068	Radio frequency power control system
MKS Instruments, Inc.	12/166160	7872523	Rf envelope pulsing using phase switching control of switch -mode power amplifiers
MKS Instruments, Inc.	12/421196	8040141	Orthogonal rf voltage current sensor with high dynamic range
MKS Instruments, Inc.	12/483717	8264238	Method for calibrating a broadband voltage/current probe
MKS Instruments, Inc.	09/121136	6046641	Parallel hv mofset high power stable amplifier
MKS Instruments, Inc.	954387	5971591	Process detection system for plasma process
MKS Instruments, Inc.	703976	6718272	Fast transient protection for rf plasma generator
MKS Instruments, Inc.	494589	6970700	Power delivery system
MKS Instruments, Inc.	724136	5810982	Preferential sputtering of insulators from conductive Targets
MKS Instruments, Inc.	803776	5717293	Strike enhancement circuit for a plasma generator
MKS Instruments, Inc.	031879	6449568	Vi probe and high matching directivity
MKS Instruments, Inc.	194688	6708123	Vi probe and high matching directivity
MKS Instruments, Inc.	020835	6020794	Ratiometric autotuning algorithm for rf plasma generator
MKS Instruments, Inc.	12/763640	8344801	Variable class characteristic amplifier
MKS Instruments, Inc.	763500	6469919	Power supplies having protection circuits
MKS Instruments, Inc.	227613	6618276	Power supplies having protection circuits
MKS Instruments, Inc.	657825	6885567	Power supplies having protection circuits
MKS Instruments, Inc.	760174	7180758	Power supplies having protection circuits
MKS Instruments, Inc.	619246	7397676	Power supplies having protection circuits
MKS Instruments, Inc.	827719	6657394	Reflection coefficient phase detector
MKS Instruments, Inc.	827880	6459067	Pulsing intelligent rf modulation controller
MKS Instruments, Inc.	227157	6700092	Pulsing intelligent rf modulation controller
MKS Instruments, Inc.	827520	6778921	Modular Architecture for industrial power delivery system
MKS Instruments, Inc.	080252	6765469	Printed circuit board transformer
MKS Instruments, Inc.	778453	6627464	Adaptive plasma characterization system
MKS Instruments, Inc.	811507	6522121	Broadband design of a probe analysis system
MKS Instruments, Inc.	874439	6559650	Rf power probe head with a thermally conductive bushing
MKS Instruments, Inc.	255425	6788040	Power holdup circuit with increased power factor
MKS Instruments, Inc.	606206	6879140	Power holdup circuit with increased power factor
MKS Instruments, Inc.	712596	RE39051	Fuzzy logic tuning of rf matching network

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	827723	6417732	Controller for rf power generator with reduced cable length sensitivity
MKS Instruments, Inc.	11/340260	7467027	Compensation for thermal siphoning in mass flow controllers
MKS Instruments, Inc.	11/333142	8037896	Pressure regulation in remote zones
MKS Instruments, Inc.	11/279786	8997791	Multiple- channel flow ratio controller
MKS Instruments Inc.	11/367641	7463991	Mass flow verifier with Flow restrictor
MKS Instruments, Inc.	11/387042	7369920	Pressure control system with optimized performance
MKS Instruments, Inc.	14/180063		System for and method of providing pressure insensitive self verifying mass flow controller
MKS Instruments, Inc.	62/212212		Method and apparatus for pressure- based flow measurement in non-critical flow conditions
MKS Instruments, Inc.	14/304463		Gas delivery method and system including a flow ratio controller using antisymmetric optimal control
MKS Instruments, Inc.	14/209216		System for and method for fast pulse gas delivery
MKS Instruments, Inc.	13/354988		System for and method of monitoring flow through mass flow controllers in real time
MKS Instruments, Inc.	14/205030		System for and method of monitoring flow through mass flow controllers in real time
MKS Instruments, Inc.	14/194092		Pilot valve structures and mass flow Controller
MKS Instruments, Inc.	09/335953	6595049	Thermal mass flow sensor with improved sensitivity and resp o
MKS Instruments, Inc.	09/539109	6446504	Constant temperature graident differential thermal mass flow sensor
MKS Instruments, Inc.	09/339083	6186177	Integrated gas delivery system
MKS Instruments, Inc.	10/603946	6955072	System and method for in- situ flow verification and calibration
MKS Instruments, Inc.	10/814973	7073771	Porous valve assembly
MKS Instruments, Inc.	10/796723	6986359	System and method for controlling pressure in remote zones
MKS Instruments, Inc.	10/796693	7072743	Semiconductor manufacturing gas flow divider system and method
MKS Instruments, Inc.	10/814970	7120542	Flow monitoring system
MKS Instruments, Inc.	10/943377	7000465	Attitude error self- correction for thermal sensors of mass flow meters and controllers
MKS Instruments, Inc.	10/718511	RE39466	Flow rate sensor implementing a plurality if inner tubes located within a sensor tube
MKS Instruments, Inc.	10/822358	7628860	Pulsed mass flow delivery system and method
MKS Instruments, Inc.	11/586782	7829353	Pulsed mass flow delivery system and method
MKS Instruments, Inc.	11/588042	7615120	Pulsed mass flow delivery system and method
MKS Instruments, Inc.	10/987718	7121139	Thermal mass flow rate sensor having fixed bypass ratio

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	11/015465	7628861	Pulsed mass flow delivery system and method
MKS Instruments, Inc.	10/987719	7000463	Reynolds number correction function for mass flow rate sensor
MKS Instruments, Inc.	11/284452	7296465	Vertical mount mass flow sensor
MKS Instruments, Inc.	11/090120	7174263	External volume insensitive flow verification
MKS Instruments, Inc.	11/111646	7621290	Gas delivery method and system including a flow ratio controller using antisymmetric optimal control
MKS Instruments, Inc.	11/021912	7387135	Valve assembly having rigid seating surfaces
MKS Instruments, Inc.	09/715890	6505812	Solenoid valve
MKS Instruments, Inc.	09/836748	6418954	System and method for dividing flow
MKS Instruments, Inc.	09/687572	6349744B1	Manifold for modular gas box system
MKS Instruments, Inc.	09/748472	6631334	Pressure- based mass flow controller system
MKS Instruments, Inc.	14/265804		Pressure- balanced control valves
MKS Instruments, Inc.	10/816412	6918295	Thermal man flow rate sensor providing increased rate of heat transfer to gas
MKS Instruments, Inc.	10/988026	7107834	Thermal mass flow rate sensor including bypass passageways and a sensor passageway having similar entrance effects
MKS Instruments, Inc.	10/391829	6813943	Method and apparatus for conditioning a gas flow to improve a rate of pressure change measurement
MKS Instruments, Inc.	10/669065	6857323	Twp phase flow sensor using tomography techniques
MKS Instruments, Inc.	12/508799	8793082	Upstream volume mass flow verification systems and methods
MKS Instruments, Inc.	12/632514	9127361	Methods and Apparatus for multiple zone pressure controllers
MKS Instruments, Inc.	12/893554	8997686	System for and method of fast pulse gas delivery
MKS Instruments, Inc.	13/035534		System for and method of fast pulse gas delivery
MKS Instruments, Inc.	12/873089	8150553	Apparatus and method for pressure fluctuation insensitive m ass flow control
MKS Instruments, Inc.	13/425784	8738187	Apparatus and method for pressure fluctuation insensitive m ass flow control
MKS Instruments, Inc.	08/664141	5693880	Heater with tapered heater density funciton for use with ma ss flowmeter
MKS Instruments, Inc.	08/852430	5824894	Improved mass flowmeter and laminar flow elements for use therein
MKS Instruments, Inc.	08/901217	5966499	System for delivering a substantially constant vapor flow t o
MKS Instruments, Inc.	08/682857	5868159	Improved pressure- based mass flow controller
MKS Instruments, Inc.	10/178261	6868862	Apparatus and method for mass flow controller with a plurality of closed Loop control code sets
MKS Instruments, Inc.	10/440371	6868723	Thermal anemometry mass flow measurement apparatus and meth od
MKS Instruments, Inc.	10/816084	7007707	Mass flow ratio system and method

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	10/037882	6766260	Mass flow ratio system and method
MKS Instruments, Inc.	10/032273	6668642	Method and apparatus for thermal isolation of thermal mass flow sensor
MKS Instruments, Inc.	10/032259	6668641	Method and apparatus for thermal dissipation in a thermal mass flow sensor
MKS Instruments, Inc.	10/032258	6779394	Apparatus and method for thermal management of a mass flow controller
MKS Instruments, Inc.	10/178721	6712084	Apparatus and method for pressure fluctuation insensitive mass flow control
MKS Instruments, Inc.	10/806974	6932098	Apparatus and method for pressure fluctuation insensitive mass flow control
MKS Instruments, Inc.	11/304456	7424346	Apparatus and method for pressure fluctuation insensitive mass flow control
MKS Instruments, Inc.	11/950966	7809473	Apparatus and Method for pressure fluctuation insensitive mass flow control
MKS Instruments, Inc.	10/170861	6687635	Apparatus and method for compensated sensor output
MKS Instruments, Inc.	10/256917	6725166	Flow pickup circuit
MKS Instruments, Inc.	10/178119	7136767	Apparatus and method for calibration of mass flow controller
MKS Instruments, Inc.	10/178378	6948508	Apparatus and method for self- calibration of mass flow controller
MKS Instruments, Inc.	10/178884	6810308	Apparatus and method for mass flow controller with network access to diagnostics
MKS Instruments, Inc.	10/178586	7552015	Apparatus and method for displaying mass flow controller pressure
MKS Instruments, Inc.	10/178810	7004191	Apparatus and method for mass flow controller with embedded web server
MKS Instruments, Inc.	11/479092	7474968	Critical flow based mass flow verifier
MKS Instruments, Inc.	11/708284	7673645	Gas delivery method and system including a flow ratio controller using a multiple Antisymmetric optimal control arrangement
MKS Instruments, Inc.	11/769435	7461549	Mass flow verifiers capable of providing different volumes and related methods
MKS Instruments, Inc.	11/635726	8079383	Controller gain scheduling for mass flow controllers
MKS Instruments, Inc.	11/651908	7706925	Integrated pressure and flow ratio control system
MKS Instruments, Inc.	12/050597	7757554	High accuracy mass flow verifier with multiple inlets
MKS Instruments, Inc.	12/273234	7891228	Dual-mode mass flow verification and mass flow delivery system and method
MKS Instruments, Inc.	14/269778		System for and method of multiple channel fast pulse gas delivery
MKS Instruments, Inc.	12/689961	8790464	Control for and method of pulsed gas delivery

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	12/139633	8386083	Systems and methods for updating valve cracking current in mass flow controllers
MKS Instruments, Inc.	09/442712	6508631	Radial flow turbomolecular vacuum pump
MKS Instruments, Inc.	10/017766	6781119	Ion stage system
MKS Instruments, Inc.	14/596737		Digitilization of analog mfc control input
MKS Instruments, Inc.	13/626432		Method and apparatus for self- verification of pressured based mass flow controllers
MKS Instruments, Inc.	13/271447	8689822	Pressure regulation in remote zones
MKS Instruments, Inc.	13/344387		System for and method of fast pulse gas delivery
MKS Instruments, Inc.	13/252363	8849466	Method and apparatus for multiple- channel pulse gas delivery system
MKS Instruments, Inc.	14/275309	9310294	Use of a retro- reflector as a quantum cascade laser (qcl) external cavity mirror
MKS Instruments, Inc.	12/880903	8645082	Monitoring detecting and quantifying chemical compounds in a sample
MKS Instruments, Inc.	09/158380	6192287	Method and apparatus for fault detection and control
MKS Instruments, Inc.	14/511842		Systems and methods for pressure differential molecular spectroscopy of compressible fluids
MKS Instruments, Inc.	08/202300	7436234	Signal oversampling for improved s:n reflector movement system
MKS Instruments, Inc.	11/074307	7546208	Method and apparatus of signal processing for use in spectrometry using an improved apodization function
MKS Instruments, Inc.	08/990834	5900633	Spectrometric method for analysis of film thickness and composition on a patterned sample
MKS Instruments, Inc.	09/156277	6161054	Cell control method and apparatus
MKS Instruments, Inc.	11/240799	7372573	Multigas monitoring and detection system
MKS Instruments, Inc.	12/119244	7595887	Multigas monitoring and detection system
MKS Instruments, Inc.	09/718602	6485872	Method and apparatus for measuring the composition and other properties of thin films
MKS Instruments, Inc.	14/637094		Method and apparatus for siloxane measurements in a biogas
MKS Instruments, Inc.	12/720542	8462347	Method and apparatus for siloxane measurements in a biogas
MKS Instruments, Inc.	13/743671	9001335	Method and apparatus for siloxane measurements in a biogas
MKS Instruments, Inc.	11/943084	8083359	Corner cube retroreflector mount
MKS Instruments, Inc.	14/518974		Multiplex tunable filter spectrometer
MKS Instruments, Inc.	12/755980	8896839	Multiplex tunable filter spectrometer
MKS Instruments, Inc.	14/753366		Systems methods and apparatus for optical hydrocarbon gas composition monitoring
MKS Instruments, Inc.	10/273402	6938493	Apparatus and methods for heat loss pressure measurement
MKS Instruments, Inc.	14/582750		Ionization gauge with emission current and bias potential control

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	62/191140		Polymer composite vacuum components
MKS Instruments, Inc.	14/795729		Ionization pressure gauge with bias voltage and emission current control and measurement
MKS Instruments, Inc.	14/994969		Polymer composite vacuum components
MKS Instruments, Inc.	13/559347	8928329	Cold cathode gauge fast response signal circuit
MKS Instruments, Inc.	11/700303	7360429	High- sensitivity pressure actuated switch based on mems- fabricated silicon diaphragm and having electrically adjustable switch point
MKS Instruments, Inc.	14/072188		Pressure sensor with real time health monitoring and compensation
MKS Instruments, Inc.	12/313778	7847559	Method and apparatus for shielding feedthrough pin insulators in an ionization gauge operating in harsh environments
MKS Instruments, Inc.	11/146721	7249516	Method of operating a resistive heat- loss pressure sensor
MKS Instruments, Inc.	13/051430	8947098	Ionization gauge with emission current and bias potential control
MKS Instruments, Inc.	14/377449		Ionization gauge for high pressure operation
MKS Instruments, Inc.	14/224927		Micro-pirani vacuum gauges
MKS Instruments, Inc.	08/917932	6025723	Miniature ionization gauge utilizing multiple ion collectors
MKS Instruments, Inc.	12/860050	8648604	Ionization gauge with operational parameters and geometry designed for high pressure operation
MKS Instruments, Inc.	14/174386		Ionization gauge with operational parameters and geometry designed for high pressure operation
MKS Instruments, Inc.	09/276985	6046456	Miniature ionization gauge utilizing multiple ion collectors
MKS Instruments, Inc.	08/745419	5801535	Ionization gauge and method of using and calibrating same
MKS Instruments, Inc.	08/897629	6023979	Apparatus and methods for heat loss pressure measurement
MKS Instruments, Inc.	14/101207		Integrated baffle for mems pressure sensor
MKS Instruments, Inc.	13/649476	8887575	Single-slot baffle for capacitance pressure sensor
MKS Instruments, Inc.	09/998292	6581471	Output device for pressure transducer
MKS Instruments, Inc.	10/095143	7252011	Surface area deposition trap
MKS Instruments, Inc.	10/127630	6588280	Pressure transducer with compensation for thermal transient s
MKS Instruments, Inc.	10/440391	6993973	Contaminant deposition control baffle for a capacitive pressure transducer
MKS Instruments, Inc.	10/954386	7201057	High- temperature reduced size manometer
MKS Instruments, Inc.	11/120396	7890220	Low overhead closed loop control system
MKS Instruments, Inc.	10/960158	7141447	Method of forming a seal between a housing and diaphragm of a capacitance sensor

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	11/543606	7316163	Method of forming a seal between a housing and diaphragm of a capacitance sensor
MKS Instruments, Inc.	10/960153	7137301	Method and apparatus for forming a reference pressure within a chamber of a capacitance sensor
MKS Instruments, Inc.	11/542316	7624643	Method and apparatus for forming a reference pressure within a chamber of a capacitance sensor
MKS Instruments, Inc.	11/036775	7204150	Turbo sump for use with capacitive pressure sensor
MKS Instruments, Inc.	11/011615	7284439	Pressure sensor for detecting small pressure differences and low pressures
MKS Instruments, Inc.	11/134001	7389697	Pressure sensor for detecting small pressure differences and low pressures
MKS Instruments, Inc.	14/537593		Cold cathode ionization vacuum gauge
MKS Instruments, Inc.	12/514339	9000364	Electrostatic ion trap
MKS Instruments, Inc.	13/508644	9322738	Vacuum quality measurement system
MKS Instruments, Inc.	14/354227	9040907	Method and apparatus for tuning an electrostatic ion trap
MKS Instruments, Inc.	14/384782		Trace gas concentration in art ms traps
MKS Instruments, Inc.	13/289142	8586918	Electrostatic ion trap
MKS Instruments, Inc.	14/500820		Cold cathode ionization vacuum gauge
MKS Instruments, Inc.	14/536102		Long lifetime cold cathode ionization gauge design
MKS Instruments, Inc.	14/795706		Feedthrough leakage current detection and decontamination in hot cathode ionization gauges
MKS Instruments, Inc.	11/012871	7313966	Method and apparatus for storing vacuum gauge calibration parameters and measurement data on a vacuum gauge structure
MKS Instruments, Inc.	11/820629	7921719	Method and apparatus for storing vacuum gauge calibration parameters and measurement data on a vacuum gauge structure
MKS Instruments, Inc.	09/993111	6688321	Method and apparatus for a flow regulator having an integral hinge
MKS Instruments, Inc.	12/828518	8704538	Improvements in capacitance sensors
MKS Instruments, Inc.	08/679952	5808206	Improved heated pressure transducer assembly
MKS Instruments, Inc.	08/863547	5932332	Improved heated pressure transducer
MKS Instruments, Inc.	08/763020	5811685	Fluid pressure sensor with contaminant exclusion system
MKS Instruments, Inc.	08/835668	5942692	Capacitive pressure sensing method and apparatus
MKS Instruments, Inc.	10/852896	6945119	Apparatus and methods for heat loss pressure measurement
MKS Instruments, Inc.	11/180370	7124640	Thermal mounting plate for heated pressure transducer
MKS Instruments, Inc.	11/119604	7000479	Heated pressure transducer

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	11/891167	7451654	Constant power dissipation in capacitance pressure transducers
MKS Instruments, Inc.	722012	5920015	A stabilized pressure sensor
MKS Instruments, Inc.	666593	6122976	Mounting of pressure sensor
MKS Instruments, Inc.	09/377832	6439056	A sensor element having temperature measuring means
MKS Instruments, Inc.	08/880035	5911162	Capacitive pressure transducer with improved electrode support
MKS Instruments, Inc.	08/887579	5965821	Pressure sensor
MKS Instruments, Inc.	09/018395	6029525	Improved capacitive based pressure sensor design
MKS Instruments, Inc.	09/475392	6227056	Method of pressure measurement
MKS Instruments, Inc.	09/360308	6105436	Capacitive pressure transducer with improved electrode support
MKS Instruments, Inc.	09/394804	6443015	Baffle for a capacitive pressure sensor
MKS Instruments, Inc.	09/637980	6568274	Capacitive based pressure sensor design
MKS Instruments, Inc.	09/685154	6772640	Multi temperature heater for use with pressure transducers
MKS Instruments, Inc.	09/528472	6198105	Miniature ionization gauge utilizing multiple ion collectors
MKS Instruments, Inc.	11/827370	7768267	An ionization gauge with a cold electron source
MKS Instruments, Inc.	09/750428	6612176	Pressure transducer assembly with thermal shield
MKS Instruments, Inc.	10/799446	7030619	Ionization gauge
MKS Instruments, Inc.	12/808983	8686733	Ionization gauge having electron multiplier cold emission source
MKS Instruments, Inc.	11/439875	7418869	Wide range combination vacuum gauge
MKS Instruments, Inc.	11/488457	7429863	Method and apparatus for maintaining emission capabilities of hot cathodes in harsh environments
MKS Instruments, Inc.	11/354278	7295015	An ionization gauge
MKS Instruments, Inc.	13/018941	8333118	Capacitive pressure sensor
MKS Instruments, Inc.	13/248521	8561471	Pressure sensor with improved electrode support
MKS Instruments, Inc.	14/616017		Stress relief structures for sensors and their packaging
MKS Instruments, Inc.	09/377833	6735845	Method of producing an integrated reference pressure sensor element
MKS Instruments, Inc.	12/229271	7656165	Method and apparatus for maintaining emission capabilities of hot cathodes in harsh environments
MKS Instruments, Inc.	09/010484	6081121	Ionization gauge and method of using and calibrating same
MKS Instruments, Inc.	12/100634	7757563	Capacitance manometers and methods of making same
MKS Instruments, Inc.	11/735654	7706995	Capacitance manometers and methods relating to auto-drift correction

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139			
Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	11/136610	8679287	Method and apparatus for preventing ald reactants from damaging vacuum pumps
MKS Instruments, Inc.	11/759202	7477996	Integrated absolute and differential pressure transducer
MKS Instruments, Inc.	12/353201	7962294	Integrated absolute and differential pressure transducer
MKS Instruments, Inc.	12/016838	7704392	Minimal residual liquid retention filter housing
MKS Instruments, Inc.	09/250928	6197119	Method and apparatus for controlling polymerized teos build -up in vacuum pump lines
MKS Instruments, Inc.	09/489374	6238514	Rotating plate heat exchanger
MKS Instruments, Inc.	09/782105	6361607	Apparatus for controlling polymerized teos build-up in vacuum pump lines
MKS Instruments, Inc.	09/816639	6488745	Trap apparatus and method for condensable by-products of de position reactions
MKS Instruments, Inc.	09/815376	7076920	Method of using a combination differential and absolute pressure transducer for controlling a load lock
MKS Instruments, Inc.	08/782785	5827370	Method and apparatus for reducing build-up of material on inner surface of tube downstream from a reaction furnace
MKS Instruments, Inc.	09/907494	6894254	Heater control system with combination modular and daisy chained connectivity and optimum allocation of functions between base unit and local controller modules
MKS Instruments, Inc.	907541	6672171	Combination differential and absolute pressure transducer f or load lock control
MKS Instruments, Inc.	09/821713	6562109	Acceleration assisted particle/gas separation system
MKS Instruments, Inc.	10/196572	6895178	Vapor delivery system
MKS Instruments, Inc.	29/145150	D472881	Pipe heater controller
MKS Instruments, Inc.	10/205014	6756785	Pressure controlled degas system for hot cathode ionization pressure gauges
MKS Instruments, Inc.	10/721817	6909975	Integrated absolute and differential pressure transducer
MKS Instruments, Inc.	11/060071	7455720	Method and apparatus for preventing products of Tiel4 and nh3 or other feed gas reactions from damaging vacuum pumps in tin or other deposition system
MKS Instruments, Inc.	14/794550		Trimmable heater
MKS Instruments, Inc.	09/847674	6790258	Method for removing condensable aluminum chloride vapor from aluminum etch effluent
MKS Instruments, Inc.	12/645455	7871587	Reactive chemical containment system (rccs)
MKS Instruments, Inc.	14/263779		Streamlined heater assembly with front and intermediate daisy chain power injection shielding and water resistant features

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139			
Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	11/278800	7932480	Multiple heater control system with expalvable modular functionality
MKS Instruments, Inc.	13/048824	8541716	Multiple heater control system with expandable modular functionality
MKS Instruments, Inc.	11/566632	7693687	Controller and method to mediate data collection from smart sensors for fab applications
MKS Instruments, Inc.	10/948085	7219255	Failsafe switching of intelligent controller method and device
MKS Instruments, Inc.	11/178626	7787477	Address- transparent device and method
MKS Instruments, Inc.	09/179124	6239429	Quadrupole mass spectrometer assembly
MKS Instruments, Inc.	13/328765	8415942	A wide-dynamic range electrometer with a fast response
MKS Instruments, Inc.	12/504652	8278909	A wide-dynamic range electrometer with a fast response
MKS Instruments, Inc.	13/155890	8796620	Mass spectrometry for gas analysis with a one-stage charged particle deflector lens between a charged particle source and a charged particle analyzer both offset from a central axis of the deflector lens
MKS Instruments, Inc.	13/155894	8796638	Mass spectrometry for a gas analysis with a two-stage charged particle deflector lens between a charged particle source and a charged particle analyzer both offset from a central axis of the deflector lens
MKS Instruments, Inc.	13/155896	8450681	Mass spectrometry for gas analysis in which both a charged particle source and a charged particle analyzer are offset from an axis of a deflector lens resulting in reduced baseline signal offsets
MKS Instruments, Inc.	11/229153	7151976	Multivariate control of semiconductor processes
MKS Instruments, Inc.	12/358864	9069345	Controlling a manufacturing process with a multivariate model
MKS Instruments, Inc.	13/336623	8412356	Methods and apparatus for automated predictive design space estimation
MKS Instruments, Inc.	12/466098	8086327	Methods and apparatus for automated predictive design space estimation
MKS Instruments, Inc.	13/775708	8577480	Methods and apparatus for automated predictive design space estimation
MKS Instruments, Inc.	11/481140	7809450	Self- correcting multivariate analysis for use in monitoring dynamic parameters in process environments
MKS Instruments, Inc.	14/273669		Computer- implemented systems and methods for generating generalized fractional designs
MKS Instruments, Inc.	12/339595	8244498	Hierarchically organizing data using a partial least square s analysis (pls- trees)

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	12/202848	8494798	Automated model building and batch model building for a manufacturing process process monitoring and fault detection
MKS Instruments, Inc.	12/113613	8271103	Automated model building and model updating
MKS Instruments, Inc.	13/039818	8725469	Optimization of data processing parameters
MKS Instruments, Inc.	13/441513		Multivariate monitoring of a batch manufacturing process
MKS Instruments, Inc.	14/158914		Multivariate prediction of a batch manufacturing process
MKS Instruments, Inc.	12/611760	8763987	Butterfly valve and system employing same and method for using same field
MKS Instruments, Inc.	14/075163	9314824	Powder and deposition control in throttle valves
MKS Instruments, Inc.	14/994668		Method and apparatus for valve deposition cleaning and prevention by plasma discharge
MKS Instruments, Inc.	14/995727		Radial sealing butterfly valve
MKS Instruments, Inc.	10/673989	7032882	Valve assembly having improved conductance control
MKS Instruments, Inc.	09/339084	6089537	Pendulum valve assembly
MKS Instruments, Inc.	09/339082	6161576	Integrated turbo pump and control valve system
MKS Instruments, Inc.	11/063075	7278444	Valve assembly having improved pump-down performance
MKS Instruments, Inc.	11/278071	7643909	Highly responsive master-slave valve Positioning
MKS Instruments, Inc.	09/715404	6439255	Valve flapper with dynamic circumference seal
MKS Instruments, Inc.	09/606382	6328051B1	Dual pendulum valve assembly
MKS Instruments, Inc.	09/612812	6409149	Dual pendulum valve assembly with valve seat cover
MKS Instruments, Inc.	11/114388	7428913	Valve assembly having articulating rigid seating surface
MKS Instruments, Inc.	10/369952	6863256	Seal ring for pendulum valve assembly
MKS Instruments, Inc.	62/320718		Actively cooled vacuum isolation valve
MKS Instruments, Inc.	14/162514	9200711	Method of two-stage flow control
MKS Instruments, Inc.	14/061553	9206919	Corrosion and deposition protected valve apparatus and method
MKS Instruments, Inc.	12/143106	7950294	Preventive maintenance diagnostics for valve systems
MKS Instruments, Inc.	11/456044	8172197	Fast-acting pneumatic diaphragm valve
MKS Instruments, Inc.	12/194463	8196893	Isolation valve with corrosion protected and heat transfer enhanced valve actuator and closure apparatus and method
MKS Instruments, Inc.	12/968551	8671987	Two-stage slow-start valve apparatus and method
MKS Instruments, Inc.	12/983162	8241596	Two-stage slow-start valve apparatus and method
MKS Instruments, Inc.	13/753019	9133960	Fluid control valves
MKS Instruments, Inc.	10/334088	6776394	Pendulum valve assembly

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139			
Owner	App. No.	Patent No.	Title
Newport Corporation		9086112	Instrumented platform for vibration sensitive equipment
Newport Corporation		9040914	Optical demultiplexing system
Newport Corporation		8736825	Quantum efficiency measurement system and method of use
Newport Corporation		8902939	Broadly tunable optical parametric oscillator
Newport Corporation		8942266	Angular beam adjustment systems and methods for laser systems
Newport Corporation		8928102	Performance optically coated semiconductor devices and related methods of manufacture
Newport Corporation		8857585	Tunable vibration dampers and methods of manufacture and tuning
Newport Corporation		8807515	Instrumented platform for vibration sensitive equipment
Newport Corporation		8755133	Optical adjustable mounts with absolute position feedback
Newport Corporation		8651447	Methods and devices for active vibration damping of an optical structure
Newport Corporation		8633440	Optical demultiplexing system
Newport Corporation		8520327	Optical adjustment mounts with piezoelectric inertial driver
Newport Corporation		8482868	Optical adjustment mounts with absolute position feedback
Newport Corporation		8441748	Adjustable optical mount with locking devices and methods
Newport Corporation		8445299	Performance optically coated semiconductor devices and related methods of manufacture
Newport Corporation		8441630	System and method for monitoring in-situ processing of specimens using coherent anti-stokes raman microscopy (cars)
Newport Corporation		6517060	Micro vibration isolation device
Newport Corporation		6520283	Mechanical signal filter
Newport Corporation		8400623	Machine and method for measuring characteristics of an optical signal
Newport Corporation		8276873	Instrumented platform for vibration sensitive equipment
Newport Corporation		8231098	Methods and devices for active vibration damping of an optical structure
Newport Corporation		8218587	Automated bandwidth/wavelength adjustment systems and methods for short pulse lasers and optical amplifiers
Newport Corporation		8196891	Instrumented platform for vibration sensitive equipment
Newport Corporation		8194076	Auto-scaling strip chart
Newport Corporation		8072587	Machine and method for measuring characteristics of an optical signal
Newport Corporation		8004527	Self-centering zoom bar graph

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
Newport Corporation		7982980	Adjustable optical mount with locking devices and methods
Newport Corporation		7962046	Automated dispersion compensation over a broad wavelength range for coherent optical pulses
Newport Corporation		7855845	Optical control system including mount for optical component having independent multi-axial control
Newport Corporation		7751461	Linewidth-narrowed excimer laser cavity
Newport Corporation		7750608	Methods and devices for low noise current source with dynamic power distribution
Newport Corporation		7688528	Mount for optical component having independent multi-axial control
Newport Corporation		7653267	Electro-optic modulator with adjustable cavity size
Newport Corporation		7528364	Optical beam steering and sampling apparatus and method
Newport Corporation		7496271	Printed circuit board with recessed region
Newport Corporation		7495849	Kinematic optical mount
Newport Corporation		7463397	Electro-optic modulator
Newport Corporation		7450300	High resolution objective lens assembly
Newport Corporation		7440176	Bi-directionally pumped optical fiber lasers and amplifiers
Newport Corporation		7423364	Sealed mover assembly
Newport Corporation		7400802	Adjustable support device for optical components and methods of use
Newport Corporation		7388890	Piezoelectric-tuned external cavity laser
Newport Corporation		7388354	Methods and devices for low noise current source with dynamic power distribution
Newport Corporation		7376525	Apparatus and method for estimation of initial phase of a brushless motor
Newport Corporation		7365665	Photodiode digitizer with fast gain switching
Newport Corporation		7330657	Method to demultiplex wavelengths of light
Newport Corporation		7323804	Linear output closed loop mover assembly
Newport Corporation		7321175	Low cost precision linear actuator and control system
Newport Corporation		7320455	Instrumented platform for vibration-sensitive equipment
Newport Corporation		7292387	Methods and systems to enhance multiple wave mixing
Newport Corporation		7286577	Laser wavelength actuators
Newport Corporation		7280568	Laser coherence control using homogenous linewidth broadening
Newport Corporation		7271523	Closed loop mover assembly with measurement system
Newport Corporation		7235902	Cooling system for linear motors

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
Newport Corporation		7230960	Tunable external cavity laser with adjustable cavity length and mode-hop suppression
Newport Corporation		7173950	Low-noise high power shg laser system
Newport Corporation		7122989	Multiple speed mover assembly
Newport Corporation		7092644	Optical receiver using a dual gain path amplifier system
Newport Corporation		7016389	Diode pumped laser with intracavity harmonics
Newport Corporation		7016107	Low gain regenerative amplifier system
Newport Corporation		6996506	Process and device for displacing a moveable unit on a base
Newport Corporation		6966535	Snubber for pneumatically isolated platforms
Newport Corporation		6940879	External cavity laser with dispersion compensation for mode-hop-free tuning
Newport Corporation		6930822	Wavelength locker
Newport Corporation		6922419	Long pulse vanadate laser
Newport Corporation		6911763	Closed loop mover assembly with measurement system
Newport Corporation		6891876	Method and application for polarization and wavelength insensitive pumping of solid state lasers
Newport Corporation		6891601	High resolution dynamic positioning mechanism for specimen inspection and processing
Newport Corporation		6890474	Algorithm for increasing the lifetime of critical components in a laser system
Newport Corporation		6853655	System for improved power control
Newport Corporation		6816536	Method and apparatus for in-situ protection of sensitive optical materials
Newport Corporation		6788726	External cavity laser with high spectral purity output
Newport Corporation		6707231	Method and apparatus for controlling a piezo actuator
Newport Corporation		6697390	Extended life harmonic generator
Newport Corporation		6642680	Multi-rate commutation of motors
Newport Corporation		6619611	Pneumatic vibration isolator utilizing an elastomeric element for isolation and attenuation of horizontal vibration
Newport Corporation		6614829	Mechanically grounded tunable laser
Newport Corporation		6614601	Gimballed optical mount
Newport Corporation		6611375	Selectively tuned ultraviolet optical filters and methods of use thereof
Newport Corporation		6608847	Tunable laser with suppression of spontaneous emission

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139

Owner	App. No.	Patent No.	Title
Newport Corporation		6606340	Continuously grating-tuned external cavity laser with automatic suppression of source spontaneous emission and amplified spontaneous emission
Newport Corporation		6598545	Vibration damper for optical tables and other structures
Newport Corporation		6597449	Real time process control of optical components using a linearly swept tunable laser
Newport Corporation		6587264	Selectively tuned ultraviolet optical filters and methods of use thereof
Newport Corporation		6568666	Method for providing high vertical damping to pneumatic isolators during large amplitude disturbances of isolated payload
Newport Corporation		6511035	Active vibration isolation systems with nonlinear compensation to account for actuator saturation
Newport Corporation		6504858	Lasers with low-doped gain medium
Newport Corporation		6476537	Apparatus for controlling a piezoelectric assembly of a piezo actuator coupled with a driven member
Newport Corporation		6462878	Double chirped mirror
Newport Corporation		6438461	Method and device for displacing a moving body on a base mounted elastically with respect to the ground
Newport Corporation		6394407	Passive vibration isolator with profiled supports
Newport Corporation		6389198	Photonic crystal fiber system for sub-picosecond pulses
Newport Corporation		6301049	Double chirped mirror
Newport Corporation		6246706	Laser writing method and apparatus
Newport Corporation		6198580	Gimballed optical mount
Newport Corporation		6185235	Lasers with low doped gain medium
Newport Corporation		6157503	High performance optical filters suitable for intense ultraviolet irradiance applications
Newport Corporation		6067197	Diffraction grating having enhanced blaze performance at two wavelengths
Newport Corporation		5999318	Reflective overcoat for replicated diffraction gratings
Newport Corporation		5995521	External cavity laser pivot design
Newport Corporation		5907570	Diode pumped laser using gain mediums with strong thermal focusing
Newport Corporation		5852519	Positionable multi-optic holder
Newport Corporation		5847885	Wide range cylindrical mirror mount with radial clamp
Newport Corporation		5835513	Q-switched laser providing uv light

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139			
Owner	App. No.	Patent No.	Title
Newport Corporation		5812583	Diode pumped fiber coupled laser with depolarized pump beam
Newport Corporation		5737132	Flip-type mirror mount
Newport Corporation		5694257	Rotary beamsplitter prism mount
Newport Corporation		6741786	Optical fiber holder with fiber engaging protrusions and associated methods
Newport Corporation		6810161	Integrating cavity for optical measurements
Newport Corporation	62/327362		Optical component mount device and post system and method of use (added 4/26/16)
Newport Corporation	15/025261		Led-based solar simulator and method of use
Newport Corporation	14/282999		Quantum efficiency measurement system and method of use
Newport Corporation	62/308863		Homogeneous laser light source for area processing applications
Newport Corporation	62/256611		Homogeneous laser light source for area processing applications
Newport Corporation	62/294832		Optical component mount device and post system and method of use
Newport Corporation	14/764565		Optical post mount system and method of use
Newport Corporation	62/249188		High power laser diode test system
Newport Corporation	62/239937		Hybrid vibration isolation system and method of manufacture
Newport Corporation	62/220337		Optical component mount system for use with an optical system
Newport Corporation	14/440783		System and method for detecting the presence and type of capacitive loads
Newport Corporation	14/582925		System and method for mounting and aligning optical components using single rail mounting
Newport Corporation	14/695009		Optical demultiplexing system
Newport Corporation	62/184978		Programmable light bias amplifier for use in internal quantum efficiency testing systems
Newport Corporation	14/125718		Solar simulator and ultraviolet filter system for use in solar simulators
Newport Corporation	13/819695		Microprocessor-based multijunction photodetection systems and methods for use
Newport Corporation	14/649793		Diamond-based supercontinuum generation system
Newport Corporation	14/765074		Method and apparatus for laser cutting transparent and semitransparent substrates
Newport Corporation	14/791570		Instrumented platform for vibration sensitive equipment
Newport Corporation	14/182019		System and method for characterizing material shrinkage using coherent anti-stokes raman (cars) microscopy
Newport Corporation	62/183155		Diode pumped high peak power laser system for multi-photon applications

579 Patents as recorded on May 4, 2016 at Reel 038663 and Frame 0139			
Owner	App. No.	Patent No.	Title
Newport Corporation	14/253087		Integral preload mechanism for piezoelectric actuator (title corrected)
Newport Corporation	14/559829		Angular beam adjustment systems and methods of use
Newport Corporation	14/501460		Broadly tunable optical parametric oscillator
Newport Corporation	14/484210		Tunable vibration dampers and methods of manufacture and tuning
Newport Corporation	14/147400		Methods and devices for active vibration damping of an optical structure
Newport Corporation	13/609134		Instrumented platform for vibration sensitive equipment

14 Patents as recorded on December 6, 2016 at Reel 040707 and Frame 0904			
Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	62/366594		Gas measurement system
MKS Instruments, Inc.	15/236661		Plasma rf bias cancellation system
MKS Instruments, Inc.	15/244264		Method and apparatus for pressure-based flow measurement in non-critical flow conditions
MKS Instruments, Inc.	15/166777		Compact microwave plasma applicator Utilizing conjoining electric fields
MKS Instruments, Inc.	15/162960		Solid state impedance matching system with a hybrid combination of a stand alone varactor with fet device switching
MKS Instruments, Inc.	62/345180		Micromachined bulk acoustic wave Resonator pressure sensor
MKS Instruments, Inc.	62/330308		Cold cathode ionization vacuum gauge with multiple cathodes
MKS Instruments, Inc.	15/153915		Trans-impedance amplifier with Increased dynamic range
MKS Instruments, Inc.	62/333989		Valve conductance control system
Newport Corporation	15/268583		Optical component mount system for use with and optical system
Newport Corporation	15/209639		Integral preload mechanism for piezoelectric actuator
Newport Corporation	62/370204		Multi-junction detector device and method of use
Newport Corporation	62/346430		Thermal compensating optical mount and related devices
Newport Corporation	15/035463		Flexure-type strain relief device

15 Patents as recorded on February 16, 2017 at Reel 041271 and Frame 0039

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	15/343975		Pressure sensor with real time health monitoring and compensation
MKS Instruments, Inc.	15/380682		Methods and apparatus for wide range mass flow verification
MKS Instruments, Inc.	62/433320		Anode electrode shield for inverted magnetron cold cathode ionization Gauge
MKS Instruments, Inc.	62/420953		System to deliver highly dilute nh4-oh for wafer rinsing in semiconductor Manufacturing
MKS Instruments, Inc.	15/297661		Stress relief structures for sensors and their packaging
MKS Instruments, Inc.	15/290684		Systems and methods for pressure differential molecular spectroscopy of compressible fluids
Newport Corporation	15/008396		Integrated picomotor mount
Newport Corporation	15/338383		High power laser diode test system
Newport Corporation	62/430862		Laser system having novel multi- stage amplifier and methods of use
Newport Corporation	62/429830		High-power yerbium doped Corporation calcium fluoride mode- locked laser and methods of use
Newport Corporation	15/353742		Homogeneous laser light source for area processing applications
Newport Corporation	15/353744		Homogeneous laser light source having temporally variable seed source for area processing applications
Newport Corporation	15/353770		Homogeneous laser light source for area processing applications
Newport Corporation	15/280894		Homogeneous laser light source for area processing applications
Newport Corporation	15/280904		Tunable vibration dampers and methods of manufacture and tuning tunable vibration dampers

16 Patents as recorded on April 17, 2017 at Reel 042026 and Frame 0800

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	15/421805		Ionization gauge for high pressure operation
MKS Instruments, Inc.	15/419047		System for and method of monitoring flow through mass flow controllers in real time
MKS Instruments, Inc.	15/452896		Sputtering system and method including an arc detection
MKS Instruments, Inc.	15/423267		Pressure-less ozonized di-water(diO3) recirculation reclaim system
MKS Instruments, Inc.	15/404457		Method and apparatus for valve deposition cleaning and prevention by plasma discharge
MKS Instruments, Inc.	15/400635		Protective oxide coating with reduced metal concentrations
MKS Instruments, Inc.	15/460611		Microwave applicator with solid-state generator power source
Newport Corporation	15/369772		Methods and devices for active vibration damping of an optical structure
Newport Corporation	15/320718		Multi-axis positioning device
Newport Corporation	15/328871		Coherently receiving simultaneous optical- based electrical signals
Newport Corporation	15/315325		Optical rail system and method using quick-disconnect optical component mounts
Newport Corporation	15/315711		Low interference optical mount
Newport Corporation	15/429584		Optical component mount device and post
Newport Corporation	62/446731		Modular broadband light source with lamp Insert and methods of use
Newport Corporation	62/451748		Diffraction grating gimbal mount
Newport Corporation	62/461323		Glancing angle photodiode and method of manufacture

23 Patents as recorded on November 15, 2017 at Reel 044455 and Frame 0355

Owner	App. No.	Patent No.	Title
Newport Corporation	62/490409		Lens system for use with high laser power density scanning system
Newport Corporation	15/601971		Optical post mount system and method of use
Newport Corporation	15/537739		Fiber device and method for amplifying pulses of laser light
MKS Instruments Inc.	15/605055		Piecewise rf power systems and methods for supplying pre- distorted rf bias voltage signals to an electrode in a processing chamber
MKS Instruments Inc.	62/504197		Pulsed bidirectional radio frequency source/load
MKS Instruments Inc.	15/499064		Cold cathode ionization vacuum Gauge with multiple cathodes
MKS Instruments Inc.	15/621241		Robust ion source
MKS Instruments Inc.	62/488160		End point detection for lyophilization
MKS Instruments Inc.	15/484072		Toroidal plasma abatement apparatus
MKS Instruments Inc.	15/478623		Actively cooled vacuum isolation valve
MKS Instruments Inc.	15/581875		Valve conductance control system
MKS Instruments Inc.	15/602758		Micromachined bulk acoustic wave resonatorpressure sensor
Newport Corporation	15/713570		Thermal compensating optical component mount and related devices
Newport Corporation	62/539377		Thermal compensating optical component mountand related devices
Newport Corporation	15/661892		Multi-junction detector device and method of use
Newport Corporation	62/564995		Modular broadband lightsource with lamp insert and methods of use
Newport Corporation	62/557364		Glancing angle photodiode and method ofmanufacture
MKS Instruments Inc.	62/551637		Balancing rf circuit and control for a cross-coupled simodistribution network
MKS Instruments Inc.	15/646017		Toroidal plasmachannel with varying cross- section areas along the channel
MKS Instruments Inc.	15/643060		Microplasma ignition of plasma
MKS Instruments Inc.	15/705643		Apparatus and method for ignition of a plasma system andfor monitoring Health of the plasma system
MKS Instruments Inc.	15/658470		Gas measurement system
MKS Instruments Inc.	15/712916		Cold cathode ionizationvacuum gauge

11 Patents as recorded on February 13, 2018 at Reel 045315 and Frame 0121

Owner	App. No.	Patent No.	Title
MKS Instruments. Inc.	15/846922		Supervisory control of radio frequency (rf) impedance tuning operation
MKS Instruments. Inc.	62/567505		Cooling and compression clamp for short lead power devices

11 Patents as recorded on February 13, 2018 at Reel 045315 and Frame 0121

Owner	App. No.	Patent No.	Title
MKS Instruments. Inc.	15/834625		Anode electrode shield for inverted magnetron cold cathode ionization gauge
MKS Instruments. Inc.	15/808471		Systems and methods for generating a conductive liquid comprising deionized Water with ammonia gas dissolved therein
Newport Corporation	15/574384		Optical demultiplexing system incorporating fiber based light delivery
Newport Corporation	15/738844		Apparatus and method for measuring one or more characteristics of one or more photovoltaic cells
Newport Corporation	15/537739		Fiber device and method for amplifying pulses of laser light
Newport Corporation	15/736280		Diode pumped high peak power laser system for multi-photon applications
Newport Corporation	15/833906		Laser system having novel multi-stage amplifier and methods of use
Newport Corporation	15/829875		High-power mode-locked laser system and methods of use
Newport Corporation	15/850349		System and method for detecting the presence and type of capacitive loads

10 Patents as recorded on April 26, 2018 at Reel 046026 and Frame 0443 and later corrected on December 18, 2018 at Reel 047952 and Frame 0086

Owner	App. No.	Patent No.	Title
Newport Corporation	15/880127		Diffraction grating gimbal mount
Newport Corporation	15/880842		High power laser diode test system
Newport Corporation	62/637368		Hybrid nano-textured anti- reflective coatings and devices
Newport Corporation	62/637380		Nano-textured dielectric Coatings for dispersion control
Newport Corporation	15/940920		System and method for mounting and aligning optical components using Single rail mounting
Newport Corporation	15/940924		System and method for mounting and aligning optical components using single rail mounting
MKS Instruments, Inc.	62/646867		Multi-sensor gas sampling detection system for radical gases and short-lived molecules and method of use
MKS Instruments, Inc.	15/876189		Adaptive counter measure control thwarting imd jamming impairments for rf plasma Systems
MKS Instruments, Inc.	15/887447		Methods and apparatus for pulse gas delivery with isolation valves
MKS Instruments, Inc.	62/647155		Methods for identifying and quantifying volatile organic carbon species in a sample

11 Patents as recorded on July 27, 2018 at Reel 047254 and Frame 0731

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	15/952168		Toroidal plasma abatement apparatus
MKS Instruments, Inc.	15/952482		End point detection for lyophilization
MKS Instruments, Inc.	15/955266		Thermal conductivity gauge
MKS Instruments, Inc.	15/973190		Methods and apparatus for multiple channel mass flow and ratio control systems
MKS Instruments, Inc.	15/974947		Pulsed, bidirectional radio frequency source/load
MKS Instruments, Inc.	15/975473		Method and apparatus for partial pressure detection
MKS Instruments, Inc.	62/677386		Gas analysis with an inverted magnetron source
MKS Instruments, Inc.	16/005761		Adaptive periodic waveform controller
MKS Instruments, Inc.	62/684820		Radical output monitor for a remote plasma source and method of use
MKS Instruments, Inc.	62/690202		Adaptive control for a power generator
MKS Instruments, Inc.	16/020415		Method and apparatus for self-verification of pressured based mass flow controllers

8 Patents as recorded on November 30, 2018 at Reel 048156 and Frame 0181

Owner	App. No.	Patent No.	Title
Newport Corporation	62/701244		Method and apparatus for focus correction of multi-image laser beam quality measurements
MKS Instruments Inc.	62/724368		Ozonated water delivery system and methods of use
MKS Instruments Inc.	16/112055		Balancing rf circuit and control for a cross-coupled simo distribution network
MKS Instruments Inc.	16/115692		Cooling and compression clamp for short lead power devices
MKS Instruments Inc.	62/717634		Gas analysis with an inverted magnetron source
MKS Instruments Inc.	16/124669		Method and apparatus for pulse gas delivery using an external pressure trigger
MKS Instruments Inc.	16/101370		Method and apparatus for processing dielectric materials
MKS Instruments Inc.	16/035551		Dielectric toms for improved plasma resistance

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646**

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	09344428	6204464	Electronic component handler
Electro Scientific Industries, Inc.	09823922	6407363	Laser system and method for single pass micromachining of multilayer workpieces
Electro Scientific Industries, Inc.	09755950	6430465	Abbe error correction system and method
Electro Scientific Industries, Inc.	09580396	6433301	Beam shaping and projection imaging with solid state uv gaussian beam to form vias
Electro Scientific Industries, Inc.	10373934	6870949	Coaxial narrow angle dark field lighting
Electro Scientific Industries, Inc.	09842436	6901160	Directional lighting and method to distinguish three dimensional information
Electro Scientific Industries, Inc.	11838706	7557594	Automated contact alignment tool
Electro Scientific Industries, Inc.	12413531	8350187	Method and apparatus for laser machining
Electro Scientific Industries, Inc.	09238171	6297541	Semiconductor device and method for fabricating the same
Electro Scientific Industries, Inc.	09200365	5990650	Method and apparatus for orienting a disk via edge contact
Electro Scientific Industries, Inc.	08774107	5998759	Laser processing
Electro Scientific Industries, Inc.	08850208	6000801	Multi-color laser projector for optical layout template and the like
Electro Scientific Industries, Inc.	08898555	6025256	Laser based method and system for integrated circuit repair or reconfiguration
Electro Scientific Industries, Inc.	09032696	6040705	Rolling electrical contactor
Electro Scientific Industries, Inc.	09035580	6098031	Versatile method and system for high speed, 3d imaging of microscopic targets
Electro Scientific Industries, Inc.	08998156	6100815	Compound switching matrix for probing and interconnecting devices under test to measurement equipment
Electro Scientific Industries, Inc.	09156895	6144118	High-speed precision positioning apparatus
Electro Scientific Industries, Inc.	09245434	6160910	High precision three dimensional mapping camera
Electro Scientific Industries, Inc.	09109482	6181728	Controlling laser polarization
Electro Scientific Industries, Inc.	09240056	6252197	Method and apparatus for separating non-metallic substrates utilizing a supplemental mechanical force applicator
Electro Scientific Industries, Inc.	09494789	6255621	Laser cutting method for forming magnetic recording head sliders
Electro Scientific Industries, Inc.	09473926	6281471	Energy-efficient, laser-based method and system for processing target material
Electro Scientific Industries, Inc.	09578787	6294747	Inspection machine for surface mount passive component
Electro Scientific Industries, Inc.	09212974	6300590	Laser processing
Electro Scientific Industries, Inc.	09441201	6337462	Laser processing
Electro Scientific Industries, Inc.	09096600	6339604	Pulse control in laser systems
Electro Scientific Industries, Inc.	09585693	6340806	Energy-efficient method and system for processing target material using an amplified, wavelength-shifted pulse train
Electro Scientific Industries, Inc.	09300549	6341029	Method and apparatus for shaping a laser-beam intensity profile by dithering
Electro Scientific Industries, Inc.	09290474	6348802	Device for enhancing contact checking

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646**

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	09035564	6366357	Method and system for high speed measuring of microscopic targets
Electro Scientific Industries, Inc.	09770275	6381259	Controlling laser polarization
Electro Scientific Industries, Inc.	09734229	6424735	High precision three dimensional mapping camera
Electro Scientific Industries, Inc.	10114750	6452686	Method and system for high speed measuring of microscopic targets
Electro Scientific Industries, Inc.	09558368	6462306	System and method for material processing using multiple laser beams
Electro Scientific Industries, Inc.	09572925	6483071	Method and system for precisely positioning a waist of a material-processing laser beam to process microstructures within a laser-processing site
Electro Scientific Industries, Inc.	09718453	6489588	Method and apparatus for separating non-metallic materials
Electro Scientific Industries, Inc.	09858784	6495791	Method and subsystem for generating a trajectory to be followed by a motor-driven stage when processing microstructures at a laser- processing site
Electro Scientific Industries, Inc.	10007269	6496292	Method and apparatus for shaping a laser-beam intensity profile by dithering
Electro Scientific Industries, Inc.	09558367	6501061	Laser calibration apparatus and method
Electro Scientific Industries, Inc.	10066351	6534743	Resistor trimming with small uniform spot from solid-state uv laser
Electro Scientific Industries, Inc.	09968541	6559412	Laser processing
Electro Scientific Industries, Inc.	10001104	6573473	Method and system for precisely positioning a waist of a material-processing laser beam to process microstructures within a laser-processing site
Electro Scientific Industries, Inc.	09757418	6574250	Laser system and method for processing a memory link with a burst of laser pulses having ultrashort pulse widths
Electro Scientific Industries, Inc.	10208484	6580054	Scribing sapphire substrates with a solid state uv laser
Electro Scientific Industries, Inc.	09984086	6586707	Control of laser machining
Electro Scientific Industries, Inc.	09903439	6593542	Uv laser system and method for single pulse severing of ic fuses
Electro Scientific Industries, Inc.	09842579	6606403	Repetitive inspection system with intelligent tools
Electro Scientific Industries, Inc.	09301002	6633338	Programmable illuminator for vision system
Electro Scientific Industries, Inc.	10107028	6639177	Method and system for processing one or more microstructures of a multi-material device
Electro Scientific Industries, Inc.	10196658	6660963	Method and apparatus for separating non-metallic materials
Electro Scientific Industries, Inc.	09858691	6662063	Method and subsystem for determining a sequence in which microstructures are to be processed at a laser-processing site
Electro Scientific Industries, Inc.	10165428	6676878	Laser segmented cutting
Electro Scientific Industries, Inc.	10039249	6678058	Integrated alignment and calibration of optical system
Electro Scientific Industries, Inc.	10053930	6703582	Energy-efficient method and system for processing target material using an amplified, wavelength-shifted pulse train
Electro Scientific Industries, Inc.	10339051	6706998	Simulated laser spot enlargement
Electro Scientific Industries, Inc.	10373232	6706999	Laser beam tertiary positioner apparatus and method
Electro Scientific Industries, Inc.	10282350	6714028	Roller contact with conductive brushes

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646**

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	09957739	6724489	Three dimensional scanning camera
Electro Scientific Industries, Inc.	09941389	6727458	Energy-efficient, laser-based method and system for processing target material
Electro Scientific Industries, Inc.	09613833	6744228	High-speed precision positioning apparatus
Electro Scientific Industries, Inc.	10222715	6763132	Repetitive inspection system with intelligent tools
Electro Scientific Industries, Inc.	10107027	6777645	High-speed, precision, laser-based method and system for processing material of one or more targets within a field
Electro Scientific Industries, Inc.	10242299	6781090	Quasi-cw diode-pumped, solid-state harmonic laser system and method employing same
Electro Scientific Industries, Inc.	10060414	6781093	Circuit singulation system and method
Electro Scientific Industries, Inc.	10143040	6784399	Micromachining with high-energy, intra-cavity q-switched co2 laser pulses
Electro Scientific Industries, Inc.	10036431	6791059	Laser processing
Electro Scientific Industries, Inc.	10325600	6791060	Beam shaping and projection imaging with solid state uv gaussian beam to form vias
Electro Scientific Industries, Inc.	10288719	6806544	Method and apparatus for cutting devices from conductive substrates secured during cutting by vacuum pressure
Electro Scientific Industries, Inc.	10077691	6816294	On-the-fly beam path error correction for memory link processing
Electro Scientific Industries, Inc.	09633837	6831936	Pulse control in laser systems
Electro Scientific Industries, Inc.	10103317	6875950	Automated trim processing system
Electro Scientific Industries, Inc.	10899133	6878899	Laser processing
Electro Scientific Industries, Inc.	10800319	6879403	Three dimensional scanning camera
Electro Scientific Industries, Inc.	10361206	6887804	Passivation processing over a memory link
Electro Scientific Industries, Inc.	10428938	6911622	Laser processing
Electro Scientific Industries, Inc.	10678951	6919532	Method of forming dimensionally precise slots in resilient mask of miniature component carrier
Electro Scientific Industries, Inc.	10611798	6947454	Laser pulse picking employing controlled aom loading
Electro Scientific Industries, Inc.	10618377	6949449	Method of forming a scribe line on a ceramic substrate
Electro Scientific Industries, Inc.	10384439	6960739	Scribing sapphire substrates with a solid state uv laser
Electro Scientific Industries, Inc.	10664755	6960813	Method and apparatus for cutting devices from substrates
Electro Scientific Industries, Inc.	10903120	6989508	High-speed, precision, laser-based method and system for processing material of one or more targets within a field
Electro Scientific Industries, Inc.	10438533	7015418	Method and system for calibrating a laser processing system and laser marking system utilizing same
Electro Scientific Industries, Inc.	11138662	7019891	Aom modulation techniques employing plurality of tilt-angled transducers to improve laser system performance
Electro Scientific Industries, Inc.	11138078	7027199	Aom modulation techniques for facilitating pulse-to-pulse energy stability in laser systems
Electro Scientific Industries, Inc.	10438501	7067763	High speed, laser-based marking method and system for producing machine readable marks on workpieces and semiconductor devices with reduced subsurface damage produced thereby
Electro Scientific Industries, Inc.	11011733	7112518	Method and apparatus for cutting devices from substrates

320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	10439069	7119351	Method and system for machine vision-based feature detection and mark verification in a workpiece or wafer marking system
Electro Scientific Industries, Inc.	10393955	7119566	Test probe alignment apparatus
Electro Scientific Industries, Inc.	10921765	7126746	Generating sets of tailored laser pulses
Electro Scientific Industries, Inc.	11138657	7133182	Aom frequency and amplitude modulation techniques for facilitating full beam extinction in laser systems
Electro Scientific Industries, Inc.	11138075	7133186	Aom modulation techniques employing transducers to modulate different axes
Electro Scientific Industries, Inc.	11138076	7133187	Aom modulation techniques employing plurality of transducers to improve laser system performance
Electro Scientific Industries, Inc.	11138659	7133188	Aom modulation techniques employing an upstream bragg adjustment device
Electro Scientific Industries, Inc.	10893148	7139294	Multi-output harmonic laser and methods employing same
Electro Scientific Industries, Inc.	11332923	7148447	Method and apparatus for laser marking by ablation
Electro Scientific Industries, Inc.	11135728	7161346	Method of holding an electronic component in a controlled orientation during parametric testing
Electro Scientific Industries, Inc.	11011664	7169688	Method and apparatus for cutting devices from substrates
Electro Scientific Industries, Inc.	11284789	7173432	Method and machine for repetitive testing of an electrical component
Electro Scientific Industries, Inc.	11114520	7176407	Method and system for precisely positioning a waist of a material-processing laser beam to process microstructures within a laser-processing site
Electro Scientific Industries, Inc.	09735097	7181058	Method and system for inspecting electronic components mounted on printed circuit boards
Electro Scientific Industries, Inc.	11125367	7192846	Methods and systems for processing a device, methods and systems for modeling same and the device
Electro Scientific Industries, Inc.	10931461	7227098	Method and system for decreasing the effective pulse repetition frequency of a laser
Electro Scientific Industries, Inc.	10967895	7238913	Flexible scan field
Electro Scientific Industries, Inc.	10887662	7241669	Method of forming a scribe line on a passive electronic component substrate
Electro Scientific Industries, Inc.	11217077	7244906	Energy monitoring or control of individual vias formed during laser micromachining
Electro Scientific Industries, Inc.	10985840	7245412	On-the-fly laser beam path error correction for specimen target location processing
Electro Scientific Industries, Inc.	10912525	7259354	Methods for processing holes by moving precisely timed laser pulses in circular and spiral trajectories
Electro Scientific Industries, Inc.	11067470	7289549	Lasers for synchronized pulse shape tailoring
Electro Scientific Industries, Inc.	11365468	7297972	Methods and systems for positioning a laser beam spot relative to a semiconductor integrated circuit using a processing target as a metrology target
Electro Scientific Industries, Inc.	11067319	7301981	Methods for synchronized pulse shape tailoring
Electro Scientific Industries, Inc.	11213329	7315038	Methods and systems for positioning a laser beam spot relative to a semiconductor integrated circuit using a processing target as an alignment target

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646**

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	11129059	7345448	Adaptive command filtering for servomechanism control systems
Electro Scientific Industries, Inc.	10921481	7348516	Methods of and laser systems for link processing using laser pulses with specially tailored power profiles
Electro Scientific Industries, Inc.	11245282	7358157	Method and system for high-speed precise laser trimming, scan lens system for use therein and electrical device produced thereby
Electro Scientific Industries, Inc.	11059025	7363180	Method for correcting systematic errors in a laser processing system
Electro Scientific Industries, Inc.	11437117	7378337	Laser-based termination of miniature passive electronic components
Electro Scientific Industries, Inc.	11593797	7382389	Methods and systems for thermal-based laser processing a multi-material device
Electro Scientific Industries, Inc.	11415547	7394476	Methods and systems for thermal-based laser processing a multi-material device
Electro Scientific Industries, Inc.	11067299	7396706	Synchronization technique for forming a substantially stable laser output pulse profile having different wavelength peaks
Electro Scientific Industries, Inc.	11695721	7402774	Flexible scan field
Electro Scientific Industries, Inc.	10916063	7402994	Self-cleaning lower contact
Electro Scientific Industries, Inc.	11131668	7407861	Method and system for high-speed, precise micromachining an array of devices
Electro Scientific Industries, Inc.	11440696	7423818	Method of suppressing distortion of a working laser beam of a laser link processing system
Electro Scientific Industries, Inc.	11051958	7425471	Semiconductor structure processing using multiple laser beam spots spaced on-axis with cross-axis offset
Electro Scientific Industries, Inc.	11862935	7428253	Method and system for a pulsed laser source emitting shaped optical waveforms
Electro Scientific Industries, Inc.	11051265	7435927	Semiconductor link processing using multiple laterally spaced laser beam spots with on-axis offset
Electro Scientific Industries, Inc.	11754254	7437207	Method and apparatus for automatically processing multiple applications in a predetermined order to affect multi-application sequencing
Electro Scientific Industries, Inc.	11565406	7443179	Zero motion contact actuation
Electro Scientific Industries, Inc.	11737052	7443893	Method and system for tunable pulsed laser source
Electro Scientific Industries, Inc.	11737044	7457329	Method and system for a high power low-coherence pulsed light source
Electro Scientific Industries, Inc.	11410684	7466466	Optical scanning method and system and method for correcting optical aberrations introduced into the system by a beam deflector
Electro Scientific Industries, Inc.	11514660	7469831	Laser-based method and system for processing targeted surface material and article produced thereby
Electro Scientific Industries, Inc.	11286132	7482551	Processing a memory link with a set of at least two laser pulses
Electro Scientific Industries, Inc.	11441453	7494900	Back side wafer dicing
Electro Scientific Industries, Inc.	11582829	7538564	Methods and apparatus for utilizing an optical reference

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646**

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	11484531	7544304	Process and system for quality management and analysis of via drilling
Electro Scientific Industries, Inc.	11657810	7563695	Method and system for high-speed precise laser trimming and scan lens for use therein
Electro Scientific Industries, Inc.	11305129	7582848	Energy-efficient, laser-based method and system for processing target material
Electro Scientific Industries, Inc.	11414678	7589869	Adjusting image quality using multi-wavelength light
Electro Scientific Industries, Inc.	11440697	7605343	Micromachining with short-pulsed, solid-state uv laser
Electro Scientific Industries, Inc.	10997586	7616669	High energy pulse suppression method
Electro Scientific Industries, Inc.	11714447	7619646	System and method to illuminate and image the inside diameter of a stent
Electro Scientific Industries, Inc.	11052014	7629234	Semiconductor structure processing using multiple laterally spaced laser beam spots with joint velocity profiling
Electro Scientific Industries, Inc.	11051261	7633034	Semiconductor structure processing using multiple laser beam spots overlapping lengthwise on a structure
Electro Scientific Industries, Inc.	11253778	7638731	Real time target topography tracking during laser processing
Electro Scientific Industries, Inc.	11218283	7667159	Resolving thermoelectric potentials during laser trimming of resistors
Electro Scientific Industries, Inc.	12033744	7667889	Methods and systems for gain control in pulsed optical amplifiers
Electro Scientific Industries, Inc.	11051262	7687740	Semiconductor structure processing using multiple laterally spaced laser beam spots delivering multiple blows
Electro Scientific Industries, Inc.	11409112	7704033	Long axis component loader
Electro Scientific Industries, Inc.	11270109	7705268	Method and system for laser soft marking
Electro Scientific Industries, Inc.	12199783	7724787	Method and system for tunable pulsed laser source
Electro Scientific Industries, Inc.	11483133	7725024	Optimizing use and performance of optical systems implemented with telecentric on-axis dark field illumination
Electro Scientific Industries, Inc.	11942984	7738166	Fiber amplifier with integrated fiber laser pump
Electro Scientific Industries, Inc.	12210028	7742511	Method and system for a pulsed laser source emitting shaped optical waveforms
Electro Scientific Industries, Inc.	11843229	7750268	Energy efficient, laser-based method and system for processing target material
Electro Scientific Industries, Inc.	12465089	7750653	Automated contact alignment tool
Electro Scientific Industries, Inc.	11676937	7760331	Decoupled, multiple stage positioning system
Electro Scientific Industries, Inc.	11482539	7787159	Achieving convergent light rays emitted by planar array of light sources
Electro Scientific Industries, Inc.	12015427	7796654	Seed source for high power optical fiber amplifier
Electro Scientific Industries, Inc.	12210023	7796655	Method and system for a pulsed laser source emitting shaped optical waveforms
Electro Scientific Industries, Inc.	12268203	7813389	Generating laser pulses of prescribed pulse shapes programmed through combination of separate electrical and optical modulators
Electro Scientific Industries, Inc.	12252287	7817682	Method and system for tunable pulsed laser source

320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	11949534	7817685	Methods and systems for generating pulse trains for material processing
Electro Scientific Industries, Inc.	12057264	7817686	Laser micromachining using programmable pulse shapes
Electro Scientific Industries, Inc.	11750375	7819235	Venturi vacuum generator on an electric component handler
Electro Scientific Industries, Inc.	11417269	7834293	Method and apparatus for laser processing
Electro Scientific Industries, Inc.	11700386	7838794	Laser-based method and system for removing one or more target link structures
Electro Scientific Industries, Inc.	11740480	7839138	Adjustable force electrical contactor
Electro Scientific Industries, Inc.	10559026	7858901	Focusing an optical beam to two foci
Electro Scientific Industries, Inc.	12464320	7862207	Optimizing use and performance of optical systems implemented with telecentric on-axis dark field illumination
Electro Scientific Industries, Inc.	12644832	7871903	Method and system for high-speed, precise micromachining an array of devices
Electro Scientific Industries, Inc.	12206848	7880798	Apparatus and method for optically converting a three-dimensional object into a two-dimensional planar image
Electro Scientific Industries, Inc.	11753996	7886437	Process for forming an isolated electrically conductive contact through a metal package
Electro Scientific Industries, Inc.	12394966	7886449	Flexure guide bearing for short stroke stage
Electro Scientific Industries, Inc.	10102702	7887712	Laser machining system and method
Electro Scientific Industries, Inc.	11496871	7888620	Reducing coherent crosstalk in dual-beam laser processing system
Electro Scientific Industries, Inc.	12052904	7888949	Electrical tester setup and calibration device
Electro Scientific Industries, Inc.	11747118	7889322	Specimen inspection stage implemented with processing stage coupling mechanism
Electro Scientific Industries, Inc.	12354408	7903697	Method and system for tunable pulsed laser source
Electro Scientific Industries, Inc.	11264757	7905471	Vacuum ring designs for electrical contacting improvement
Electro Scientific Industries, Inc.	11776904	7919646	Hydrocyanation of 2-pentenenitrile
Electro Scientific Industries, Inc.	11052000	7923306	Semiconductor structure processing using multiple laser beam spots
Electro Scientific Industries, Inc.	12052883	7924033	Compensation tool for calibrating an electronic component testing machine to a standardized value
Electro Scientific Industries, Inc.	12464475	7929857	Optimizing use and performance of optical systems implemented with telecentric on-axis dark field illumination
Electro Scientific Industries, Inc.	11051263	7935941	Semiconductor structure processing using multiple laser beam spots spaced on-axis on non-adjacent structures
Electro Scientific Industries, Inc.	11834472	7940453	Fiber amplifiers and fiber lasers with reduced out-of-band gain
Electro Scientific Industries, Inc.	12194886	7943862	Method and apparatus for optically transparent via filling
Electro Scientific Industries, Inc.	12515926	7947575	Laser machining
Electro Scientific Industries, Inc.	11643023	7955905	Methods and systems for thermal-based laser processing a multi-material device
Electro Scientific Industries, Inc.	12165853	7955906	Methods and systems for thermal-based laser processing a multi-material device

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646**

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	11742879	7968820	Method of producing a panel having an area with light transmissivity
Electro Scientific Industries, Inc.	12751736	7977213	Use of laser energy transparent stop layer to achieve minimal debris generation in laser scribing a multilayer patterned workpiece
Electro Scientific Industries, Inc.	11287842	7977601	X & y orthogonal cut direction processing with set beam separation using 45 degree beam split orientation apparatus and method
Electro Scientific Industries, Inc.	12054115	7982161	Method and apparatus for laser drilling holes with tailored laser pulses
Electro Scientific Industries, Inc.	11131432	7985942	Method of providing consistent quality of target material removal by lasers having different output performance characteristics
Electro Scientific Industries, Inc.	10561883	7989320	Die bonding
Electro Scientific Industries, Inc.	11757232	8026158	Systems and methods for processing semiconductor structures using laser pulses laterally distributed in a scanning window
Electro Scientific Industries, Inc.	10490985	8048774	Methods and systems for laser machining a substrate
Electro Scientific Industries, Inc.	11481562	8049135	Systems and methods for alignment of laser beam(s) for semiconductor link processing
Electro Scientific Industries, Inc.	12347551	8084896	Monolithic stage positioning system and method
Electro Scientific Industries, Inc.	12728598	8090551	Self-testing, monitoring and diagnostics in grouped circuitry modules
Electro Scientific Industries, Inc.	12060023	8093532	Laser machining of fired ceramic and other hard and/or thick materials
Electro Scientific Industries, Inc.	12121684	8106329	Laser processing of conductive links
Electro Scientific Industries, Inc.	11499394	8110775	Systems and methods for distinguishing reflections of multiple laser beams for calibration for semiconductor structure processing
Electro Scientific Industries, Inc.	12060043	8124911	On-the-fly manipulation of spot size and cutting speed for real-time control of trench depth and width in laser operations
Electro Scientific Industries, Inc.	12477505	8132966	Rotary flexure and air bearing support for rotary indexing system
Electro Scientific Industries, Inc.	12869358	8134760	Achieving convergent light rays emitted by planar array of light sources
Electro Scientific Industries, Inc.	11051500	8148211	Semiconductor structure processing using multiple laser beam spots spaced on-axis delivered simultaneously
Electro Scientific Industries, Inc.	12164698	8173931	Automatic recipe management for laser processing a work piece
Electro Scientific Industries, Inc.	11972660	8178906	Laser chalcogenide phase change device
Electro Scientific Industries, Inc.	11247541	8193468	Methods and systems for precisely relatively positioning a waist of a pulsed laser beam and method and system for controlling energy delivered to a target structure
Electro Scientific Industries, Inc.	11440711	8198566	Laser processing of workpieces containing low-k dielectric material

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646**

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	12907768	8208506	Methods and systems for generating pulse trains for material processing
Electro Scientific Industries, Inc.	10107890	8217304	Methods and systems for thermal-based laser processing a multi-material device
Electro Scientific Industries, Inc.	11742262	8231323	Electronic component handler having gap set device
Electro Scientific Industries, Inc.	12767495	8235643	Long axis component loader
Electro Scientific Industries, Inc.	12056824	8237080	Method and apparatus for laser drilling holes with gaussian pulses
Electro Scientific Industries, Inc.	12374989	8248688	Tandem photonic amplifier
Electro Scientific Industries, Inc.	12950969	8253066	Laser-based method and system for removing one or more target link structures
Electro Scientific Industries, Inc.	12895316	8265106	Method and system for tunable pulsed laser source
Electro Scientific Industries, Inc.	12233476	8269137	Link processing with high speed beam deflection
Electro Scientific Industries, Inc.	11687578	8278595	Use of predictive pulse triggering to improve accuracy in link processing
Electro Scientific Industries, Inc.	12790093	8288679	Laser processing systems using through-the-lens alignment of a laser beam with a target feature
Electro Scientific Industries, Inc.	12111616	8288684	Laser micro-machining system with post-scan lens deflection
Electro Scientific Industries, Inc.	11565356	8320424	Optical component cleanliness and debris management in laser micromachining applications
Electro Scientific Industries, Inc.	12499123	8329600	Method and system for high-speed precise laser trimming and scan lens for use therein
Electro Scientific Industries, Inc.	12192915	8379204	System and method for automatic laser beam alignment
Electro Scientific Industries, Inc.	12704293	8379679	Method and apparatus for reliably laser marking articles
Electro Scientific Industries, Inc.	12389034	8383029	Manufacture of high strength, high density carrier plate
Electro Scientific Industries, Inc.	12753367	8383984	Method and apparatus for laser singulation of brittle materials
Electro Scientific Industries, Inc.	12823895	8389895	Method and apparatus for reliably laser marking articles
Electro Scientific Industries, Inc.	11742862	8394301	Process for forming panel with an optically transmissive portion and products related thereto
Electro Scientific Industries, Inc.	12790082	8404998	Acousto-optic deflector applications in laser processing of dielectric or other materials
Electro Scientific Industries, Inc.	13114607	8450640	Panel with micro-hole pattern in a structurally thin portion
Electro Scientific Industries, Inc.	12871588	8451873	Method and apparatus for reliably laser marking articles
Electro Scientific Industries, Inc.	12646402	8461479	Adaptive processing constraints for memory repair
Electro Scientific Industries, Inc.	12483544	8461482	Pre-process stress loading components for post-process warp control
Electro Scientific Industries, Inc.	11925562	8497450	On-the-fly laser beam path dithering for enhancing throughput
Electro Scientific Industries, Inc.	12263378	8508843	Laser systems with doped fiber components
Electro Scientific Industries, Inc.	12060076	8526473	Methods and systems for dynamically generating tailored laser pulses
Electro Scientific Industries, Inc.	13542177	8593722	Systems and methods for providing temperature stability of acousto-optic beam deflectors and acousto-optic modulators during use

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646**

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	12054811	8599890	Systems and methods for laser pulse equalization
Electro Scientific Industries, Inc.	12859498	8604380	Method and apparatus for optimally laser marking articles
Electro Scientific Industries, Inc.	11440792	8624157	Ultrashort laser pulse wafer scribing
Electro Scientific Industries, Inc.	13076754	8648277	Laser direct ablation with picosecond laser pulses at high pulse repetition frequencies
Electro Scientific Industries, Inc.	13081051	8665515	Fiber amplifiers and fiber lasers with reduced out-of-band gain
Electro Scientific Industries, Inc.	12330418	8680430	Controlling dynamic and thermal loads on laser beam positioning system to achieve high-throughput laser processing of workpiece features
Electro Scientific Industries, Inc.	11719390	8694148	Tracking and marking specimens having defects formed during laser via drilling
Electro Scientific Industries, Inc.	13326133	8723075	Laser machining of fired ceramic and other hard and/or thick materials
Electro Scientific Industries, Inc.	13399856	8723076	On-the-fly manipulation of spot size and cutting speed for real-time control of trench depth and width in laser operations
Electro Scientific Industries, Inc.	12413084	8729427	Minimizing thermal effect during material removal using a laser
Electro Scientific Industries, Inc.	13163504	8733535	Shallow angle vertical rotary loader for electronic device testing
Electro Scientific Industries, Inc.	13100995	8816246	Method and apparatus for drilling using a series of laser pulses
Electro Scientific Industries, Inc.	14151457	8842362	Fiber amplifiers and fiber lasers with reduced out-of-band gain
Electro Scientific Industries, Inc.	13359879	8847110	Laser processing of conductive links
Electro Scientific Industries, Inc.	12889435	8847112	Method and apparatus to scribe a line in a thin film material using a burst of laser pulses with beneficial pulse shape
Electro Scientific Industries, Inc.	13279993	8847113	Laser processing systems and methods for beam dithering and skiving
Electro Scientific Industries, Inc.	12972021	8878095	Reducing back-reflection in laser micromachining systems
Electro Scientific Industries, Inc.	13078787	8890025	Method and apparatus to scribe thin film layers of cadmium telluride solar cells
Electro Scientific Industries, Inc.	13267813	8894868	Substrate containing aperture and methods of forming the same
Electro Scientific Industries, Inc.	13629924	8901947	Probe out-of-position sensing for automated test equipment
Electro Scientific Industries, Inc.	13350606	8958705	Methods and systems for a pulsed laser source emitting a predetermined output pulse profile
Electro Scientific Industries, Inc.	13250871	8960686	Controlled Surface Roughness in Vacuum Retention
Electro Scientific Industries, Inc.	12796193	8964801	Method and system for stable and tunable high power pulsed laser system
Electro Scientific Industries, Inc.	13163516	8970238	Probe module with interleaved serpentine test contacts for electronic device testing
Electro Scientific Industries, Inc.	12909759	9023461	Apparatus for optically laser marking articles

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646**

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	11949582	9029731	Methods and systems for laser processing continuously moving sheet material
Electro Scientific Industries, Inc.	14056999	9036247	Systems and methods for providing temperature stability of acousto-optic beam deflectors and acousto-optic modulators during use
Electro Scientific Industries, Inc.	13938072	9120180	Interactive control system, methods of making the same, and devices incorporating the same
Electro Scientific Industries, Inc.	13557545	9157876	Method and apparatus for characterizing objects and monitoring manufacturing processes
Electro Scientific Industries, Inc.	14098229	9221124	Ultrashort laser pulse wafer scribing
Electro Scientific Industries, Inc.	13779183	9227868	Method and apparatus for machining strengthened glass and articles produced thereby
Electro Scientific Industries, Inc.	10559442	9242312	Laser machining using a surfactant film
Electro Scientific Industries, Inc.	13558571	9259802	Method and apparatus for collecting material produced by processing workpieces
Electro Scientific Industries, Inc.	12589063	9261465	System and method to illuminate and image the inside diameter of a stent
Electro Scientific Industries, Inc.	13482248	9266192	Method and apparatus for processing workpieces
Electro Scientific Industries, Inc.	14194455	9269035	Modified two-dimensional codes, and laser systems and methods for producing such codes
Electro Scientific Industries, Inc.	13331472	9289858	Drilling Holes with Minimal Taper in Cured Silicone
Electro Scientific Industries, Inc.	13793190	9304090	Systems and methods for providing polarization compensated multi-spectral laser repair of liquid crystal display panels
Electro Scientific Industries, Inc.	12336609	9346130	Method for laser processing glass with a chamfered edge
Electro Scientific Industries, Inc.	14461171	9463528	Laser systems and methods for internally marking thin layers, and articles produced thereby
Electro Scientific Industries, Inc.	14151420	9486877	Laser pulse energy control systems and methods
Electro Scientific Industries, Inc.	14151420	9486877	Laser pulse energy control systems and methods
Electro Scientific Industries, Inc.	14214787	9527159	Laser emission-based control of beam positioner
Electro Scientific Industries, Inc.	13797891	9568167	Products with a patterned light-transmissive portion
Electro Scientific Industries, Inc.	14630436	9594937	Optical mark reader
Electro Scientific Industries, Inc.	14032829	9610653	Method and apparatus for separation of workpieces and articles produced thereby
Electro Scientific Industries, Inc.	14147867	9636713	Systems and methods for handling components
Electro Scientific Industries, Inc.	14211162	9724782	Laser systems and methods for aod tool settling for aod travel reduction
Electro Scientific Industries, Inc.	14214649	9776277	Phased array steering apparatus for laser beam positioning systems
Electro Scientific Industries, Inc.	14229347	9776906	Laser machining strengthened glass
Electro Scientific Industries, Inc.	13915463	9823101	Automated stent inspection system
Electro Scientific Industries, Inc.	13778950	9828277	Methods for separation of strengthened glass
Electro Scientific Industries, Inc.	14094656	9828278	Method and apparatus for separation of strengthened glass and articles produced thereby
Electro Scientific Industries, Inc.	14211115	9931713	Laser systems and methods for aod rout processing
Electro Scientific Industries, Inc.	14705056	9939624	Five Axis Optical Inspection System

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, 2021 at Reel 055006 and Frame 0492 removed 7,919,646**

Registered Owner	App. No.	Patent No.	Title
Electro Scientific Industries, Inc.	15188496	9981357	Systems and methods for enabling automated motion control of a tool in a multi-axis machine tool
Electro Scientific Industries, Inc.	14962732	9983562	Adaptive part profile creation via independent side measurement with alignment features
Electro Scientific Industries, Inc.	11948425	RE41924	Method and system for machine vision-based feature detection and mark verification in a workpiece or wafer marking system

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, at Reel 055006 and Frame 0492 removed 7,919,646**

Applicant Name	App. No.	Title
Electro Scientific Industries, Inc.	12413350	Laser micromachining with tailored bursts of short laser pulses
Electro Scientific Industries, Inc.	13850168	Acousto-optic deflector applications in laser processing of dielectric or other materials
Electro Scientific Industries, Inc.	14033368	Method and apparatus for machining a workpiece
Electro Scientific Industries, Inc.	14059029	Method and apparatus for marking an article
Electro Scientific Industries, Inc.	14135097	Methods of forming images by laser micromachining
Electro Scientific Industries, Inc.	14490523	Laser processing systems and methods for beam dithering and skiving
Electro Scientific Industries, Inc.	14707950	Methods and systems for laser processing continuously moving sheet material
Electro Scientific Industries, Inc.	15019221	Borescope inspection system
Electro Scientific Industries, Inc.	15047279	Laser systems and methods for large area modification
Electro Scientific Industries, Inc.	15055037	Fast beam manipulation for cross-axis micromachining
Electro Scientific Industries, Inc.	15180709	Methods and apparatus for processing transparent materials
Electro Scientific Industries, Inc.	15182179	Laser processing apparatus, methods of laser-processing workpieces and related arrangements
Electro Scientific Industries, Inc.	15233364	Laser scan sequencing and direction with respect to gas flow
Electro Scientific Industries, Inc.	15398171	Products with a patterned light-transmissive portion
Electro Scientific Industries, Inc.	15966615	Multi-axis machine tool and methods of controlling the same
Electro Scientific Industries, Inc.	15691344	Phased array steering for laser beam positioning systems
Newport Corporation	16/154669	Led-based solar simulator system and method of use

**320 Patents recorded on February 1, 2019 at Reel 048211 and Frame 0227 includes 7,919,646
319 Patents recorded on January 14, at Reel 055006 and Frame 0492 removed 7,919,646**

Applicant Name	App. No.	Title
Newport Corporation	62/770340	Method and apparatus for immersion grating lithography
MKS Instruments, Inc.	16/205064	Multi-sensor gas sampling detection system for radical gases and short-lived molecules and method of use
MKS Instruments, Inc.	16/164892	Impedance matching network model based correction scheme and performance repeatability
MKS Instruments, Inc.	16/168812	System for and method for fast pulse gas delivery
MKS Instruments, Inc.	16/192223	Resonant transmission line to deliver precision rf voltage

25 Patents recorded on April 25, 2019 at Reel 050335 and Frame 0027

Owner	App. No.	Patent No.	Title
Newport Corporation	62/800441		Low repetition rate infrared tunable femtosecond laser source
Newport Corporation	16/289203		Optical components having hybrid nano-textured anti-reflective coatings and methods of manufacture
Electro Scientific Industries, Inc.	13/756212	10112263	Method and apparatus for reliably laser marking articles
Electro Scientific Industries, Inc.	62/823454		Phased-array beam steering for materials processing
Electro Scientific Industries, Inc.	62/808742		Phased-array beam steering for materials processing
Electro Scientific Industries, Inc.	62/799218		Laser processing apparatus, methods of operating the same, and methods of processing workpieces using the same
Electro Scientific Industries, Inc.	16/318092		Laser processing apparatus and methods of laser-processing workpieces
Electro Scientific Industries, Inc.	62/788216		Frame and exterior shrouding for laser processing system
Electro Scientific Industries, Inc.	62/746364		Frame and exterior shrouding for laser processing system
Electro Scientific Industries, Inc.	62/745777		Systems and methods for use in handling components
Electro Scientific Industries, Inc.	29/666312		Laser processing machine
Electro Scientific Industries, Inc.	62/742694		Systems and methods for drilling vias in transparent materials
Electro Scientific Industries, Inc.	62/718236		Acousto-optical device with integrated temperature sensor
Electro Scientific Industries, Inc.	62/711308		Acousto-optical device with integrated temperature sensor
Electro Scientific Industries, Inc.	16/067693		Laser-seeding for electro-conductive plating
Electro Scientific Industries, Inc.	16/067711		Location of image plane in a laser processing system
Electro Scientific Industries, Inc.	16/020592		Method and apparatus for reliably laser marking articles
Electro Scientific Industries, Inc.	62/688484		Laser processing apparatus incorporating a workpiece handling apparatus and methods of operating the same
Electro Scientific Industries, Inc.	62/680856		Laser processing apparatus incorporating a workpiece handling apparatus and methods of operating the same
Electro Scientific Industries, Inc.	15/780072		System isolation and optics bay sealing
MKS Instruments, Inc.	62/824592		Pipe insulators for high temperature applications and methods of manufacture
MKS Instruments, Inc.	62/825777		Low profile heater apparatus and method of manufacture
MKS Instruments, Inc.	16/273595		Adaptive periodic waveform controller
MKS Instruments, Inc.	16/297799		Adaptive control for a power generator
MKS Instruments, Inc.	16/261900		Converter control apparatus and method for high stability and power factor improvement in the presence of high source impedances

19 Patents as recorded on August 7, 2019 at Reel 049987 and Frame 0820

Owner	Appl. No.	Patent No.	Title
Newport Corporation	62/838188		Zero insertion force flexible clamp and methods of use and manufacture
Newport Corporation	16/468557		Modular broadband light source with lamp insert and methods of use
Electro Scientific Industries, Inc.	62/832064		Laser processing apparatus, methods of operating the same, and methods of processing workpieces using the same
Electro Scientific Industries, Inc.	62/836461		Methods and apparatus for performing laser lift-off
Electro Scientific Industries, Inc.	16/400792		Laser micromachining with tailored bursts of short laser pulses
Electro Scientific Industries, Inc.	62/854579		Laser processing apparatus, methods of operating the same, and methods of processing workpieces using the same
Electro Scientific Industries, Inc.	62/859572		Laser processing apparatus, methods of operating the same, and methods of processing workpieces using the same
MKS Instruments, Inc.	16/438827		Radical output monitor for a remote plasma source and method of use
MKS Instruments, Inc.	62/837163		Heated throttle valve apparatus and methods of use and manufacture
MKS Instruments, Inc.	16/452716		High speed synchronization of plasma source / bias power delivery
MKS Instruments, Inc.	16/415313		Polymer composite vacuum components
MKS Instruments, Inc.	16/397436		Gas analysis with an inverted magnetron source
MKS Instruments, Inc.	16/376861		Method and apparatus for pulse gas delivery
MKS Instruments, Inc.	16/406339		Polygonal toroidal plasma source
MKS Instruments, Inc.	62/831138		Systems and methods for generating a dissolved ammonia solution with reduced dissolved carrier gas and oxygen content
MKS Instruments, Inc.	16/408752		Actively cooled vacuum isolation valve
MKS Instruments, Inc.	62/855136		Phase linking of multiple solid-state generator modules and smart pallets for plasma generator
MKS Instruments, Inc.	16/377501		Apparatus and method for controlling ion energy distribution in process plasmas
MKS Instruments, Inc.	16/377522		Method for ion mass separation and ion energy control in process plasmas

10 Patents recorded on October 30, 2019 at Reel 050872 and Frame 0656

Owner	Appl. No.	Patent No.	Title
Newport Corporation	16/553921		Multi-junction detector device and method of manufacture
Newport Corporation	16/478625		High responsivity high bandwidth photodiode and method of manufacture
Newport Corporation	16/492919		Lens system for use with high laser power density scanning system
Electro Scientific Industries, Inc.	62907891		Reduced impedance variation in a modular 2-terminal contacting electrical measurement system
Electro Scientific Industries, Inc.	16557189		Laser processing systems and methods for beam dithering and skiving
Electro Scientific Industries, Inc.	16505422		Acousto-optic deflector applications in laser processing of dielectric or other materials
MKS Instruments, Inc.	16/553033		Ozonated water delivery system and methods of use
MKS Instruments, Inc.	16/509088		Feedback control by rf waveform tailoring for ion energy distribution
MKS Instruments, Inc.	16/506555		Piecewise rf power systems and methods for supplying pre-distorted rf bias voltage signals to an electrode in a processing chamber
MKS Instruments, Inc.	62/886279		Method to enhance sheath formation, evolution and pulse to pulse stability in rf powered plasma applications

10 Patents recorded on January 23, 2020 at Reel 051689 and Frame 0973

Owner	Appl. No.	Patent No.	Title
Newport Corporation	62/926701		Low wavefront distortion optical mount for thin optical components
Newport Corporation	16/672237		Method and apparatus for immersion grating lithography
Newport Corporation	16/711940		High-power mode-locked laser system and methods of use
Electro Scientific Industries, Inc.	62/926148		Laser processing apparatus, methods of operating the same, and methods of processing workpieces using the same
Electro Scientific Industries, Inc.	62/930287		Laser processing apparatus, methods of operating the same, and methods of processing workpieces using the same
MKS Instruments, Inc.	16/713713		Robust ion source
MKS Instruments, Inc.	16/710412		Pulsed, bidirectional radio frequency source/load
MKS Instruments, Inc.	16/724844		Valve conductance control system

8 Patents recorded on April 15, 2020 at Reel 052410 and Frame 0234

Owner	App. No.	Patent No.	Title
Newport Corporation	16/778567		Low repetition rate infrared tunable femtosecond laser
Electro Scientific Industries, Inc.	62970648		Laser processing apparatus, methods of operating the same, and methods of processing workpieces using the same

Electro Scientific Industries, Inc.	62983397		Via density compensation through real-time pulse energy manipulation
Electro Scientific Industries, Inc.	29564998		Component carrying plate
MKS Instruments, Inc.	16/800363		Methods and apparatus of pressure based flow ratio controller
MKS Instruments, Inc.	16/742172		Method and apparatus for pulse gas delivery with concentration measurement
MKS Instruments, Inc.	16823715		Low profile heater apparatus and method of manufacture
MKS Instruments, Inc.	16825994		Capacitance manometer

11 Patents recorded on July 16, 2020 at Reel 053235 and Frame 0841

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	16/849871		Valve apparatuses and related methods for reactive process gas isolation and facilitating purge during isolation
MKS Instruments, Inc.	16/842515		Systems and methods for generating a dissolved ammonia solution with reduced dissolved carrier gas and oxygen content
MKS Instruments, Inc.	16/851644		Heated throttle valve apparatus and methods of use and manufacture
MKS Instruments, Inc.	16/881390		System and method of power generation with phase linked solid-state generator modules
MKS Instruments, Inc.	16/898016		Method and apparatus for pulse gas delivery using an external pressure trigger
MKS Instruments, Inc.	16/881458		System and method of power generation with phase linked solid-state generator modules
MKS Instruments, Inc.	16/887346		System and method for arc detection using a bias rf generator signal
MKS Instruments, Inc.	16/905377		Adaptive periodic waveform controller
Electro Scientific Industries, Inc.	63/026564		Laser processing apparatus, methods of operating the same, and methods of processing workpieces using the same
Electro Scientific Industries, Inc.	63/024999		Laser processing apparatus facilitating directed inspection of laser-processed workpieces and methods of operating the same
Electro Scientific Industries, Inc.	16/854207		Multi-axis machine tool and methods of controlling the same

8 Patents recorded on October 13, 2020 at Reel 054065 and Frame 0445

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	16/986680		Method to enhance sheath formation, evolution and pulse to pulse stability in rf powered plasma applications
MKS Instruments, Inc.	16/990396		Endpoint detection for combined chamber and foreline clean

MKS Instruments, Inc.	16/993775		Microwave applicator with solid-state generator power source
MKS Instruments, Inc.	17/005560		System to deliver highly dilute nh4-oh for wafer rinsing in semiconductor manufacturing
Newport Corporation	16/992400		Laser system having novel multi-stage amplifier and methods of use
Newport Corporation	63/054931		Methods and devices for optimizing contrast for use with obscured imaging systems
Newport Corporation	17/017402		Multi-axis motion system with decoupled wafer chuck support and methods of use and manufacture
Newport Corporation	16/957812		Laser oscillator system having optical element for injection seeding and method of manufacture

17 Patents recorded on January 21, 2021 at Reel 055060 and Frame 0432

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	17/073709		Intermodulation distortion mitigation using electronic variable capacitor
MKS Instruments, Inc.	63/110818		Pressure control using an external pressure trigger
MKS Instruments, Inc.	17/111700		Switched capacitor modulator
MKS Instruments, Inc.	63/116599		Method and apparatus for pulse gas delivery with pressure control
MKS Instruments, Inc.	17/102598		Apparatus and tuning method for mitigating rf load impedance variations due to periodic disturbances
MKS Instruments, Inc.	16/953923		Thermal conductivity gauge
MKS Instruments, Inc.	63/114287		Thermal conductivity gauge
MKS Instruments, Inc.	17/107146		Method and apparatus for valve deposition cleaning and prevention by plasma discharge
MKS Instruments, Inc.	17/119804		Polymer composite vacuum components
MKS Instruments, Inc.	63/130257		Method and apparatus of radical detection using rga
Newport Corporation	17/070039		Low wavefront distortion optical mount for thin optical components
Electro Scientific Industries, Inc.	63/131921		Backreflection feedback for smart hdi via drilling and process development
Electro Scientific Industries, Inc.	63/122573		Flying relay for coordinating aod pivot point with stage motion
Electro Scientific Industries, Inc.	63/124443		Laser processing apparatus facilitating directed inspection of laser-processed workpieces and methods of operating the same
Electro Scientific Industries, Inc.	63/113378		Post scan lens bean dump concept
Electro Scientific Industries, Inc.	63/092203		Mlcc tester high voltage isolation and mitigation method
Electro Scientific Industries, Inc.	63/130975		Apparatus and method for operating acousto-optical deflectors

15 Patents recorded on April 29, 2021 at Reel 056101 and Frame 0652

Owner	App. No.	Patent No.	Title
-------	----------	------------	-------

MKS Instruments, Inc.	63/145178		Apparatus and methods for microwave-assisted surface chemistry annealing of ald processes utilizing microwave radiation energy
MKS Instruments, Inc.	17/154698		New technology load-lock gauge
Electro Scientific Industries, Inc.	63/157229		Laser-processing apparatus, methods of operating the same, and methods of processing workpieces using the same
Electro Scientific Industries, Inc.	17/185259		Laser-seeding for electro-conductive plating
Electro Scientific Industries, Inc.	16/464551		Method and system for extending optics lifetime in laser processing apparatus
Electro Scientific Industries, Inc.	16/499511		Multi-axis machine tool and methods of controlling the same
Electro Scientific Industries, Inc.	16/619875		Optically contacted acousto optic device and method of making the same
Electro Scientific Industries, Inc.	16/621630		Non-contact handler and method of handling workpieces using the same
Electro Scientific Industries, Inc.	16/636605		Acousto-optic system having phase-shifting reflector
Electro Scientific Industries, Inc.	17/047254		Laser processing apparatus incorporating a workpiece handling apparatus and methods of operating the same
Electro Scientific Industries, Inc.	17/272155		Systems and methods for drilling vias in transparent materials
Electro Scientific Industries, Inc.	17/273695		Systems and methods for use in handling components
Electro Scientific Industries, Inc.	17/272611		Frame and exterior shrouding for laser processing system
Electro Scientific Industries, Inc.	17/276736		Laser processing apparatus, methods of operating the same, and methods of processing workpieces using the same
Newport Corporation	63/168028		Multiple wavelength laser system for extreme ultraviolet light

10 Patents recorded on July 17, 2021 at Reel 056899 and Frame 0051

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	63/194472		Light-enhanced ozone wafer processing system and method of use
MKS Instruments, Inc.	17/322549		Cooling and compression clamp for short lead power devices
MKS Instruments, Inc.	17/232950		Adaptive control for a power generator
MKS Instruments, Inc.	17/342341		Methods and apparatus for pressure based mass flow ratio control using differential pressure sensors
MKS Instruments, Inc.	17/237913		Dielectric torus for improved plasma resistance
Electro Scientific Industries, Inc.	17/290198		Phased-array beam steering for materials processing
Electro Scientific Industries, Inc.	63/213075		Profiling, characterization, and calibration of aod "chirped" beams with beam-characterization-tool
Electro Scientific Industries, Inc.	63/178108		Roller contact with reduced contact resistance variation
Electro Scientific Industries, Inc.	17/326664		Phased array steering for laser beam positioning systems
Electro Scientific Industries, Inc.	17/354680		Laser processing apparatus, methods of laser-processing workpieces and related arrangements

8 Patents recorded on October 28, 2021 at Reel 057953 and Frame 0109

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	17/396901		Adaptive pulse shaping with post match sensor
MKS Instruments, Inc.	17/391724		Method and apparatus for plasma generation
MKS Instruments, Inc.	17/365479		Gan clamp with uniform pressure
MKS Instruments, Inc.	63/231861		Hybrid high-power & broadband variable impedance module
MKS Instruments, Inc.	17/406378		Method and apparatus for impedance matching in a power delivery system for remote plasma generation
MKS Instruments, Inc.	17/486139		Multi-wavelength ozone concentration sensor and method of use
Electro Scientific Industries, Inc.	17/599756		Laser processing apparatus, methods of operating the same, and methods of processing workpieces using the same
Electro Scientific Industries, Inc.	63/245631		Reducing positional sensitivity of laser beam on photodetector using lens with ptfе diffuser

11 Patents recorded on February 23, 2022 at Reel 059220 and Frame 0637

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	17/644704		Method and apparatus of radical detection using Rga
MKS Instruments, Inc.	17/502666		Impedance matching in a rf power generation System
MKS Instruments, Inc.	17/453450		Thermal conductivity gauge
MKS Instruments, Inc.	17/452030		Binary gas purity analyzer
MKS Instruments, Inc.	63/272535		Multi-phase power supply with power factor correction for magnetrons
MKS Instruments, Inc.	17/452953		Pressure control using an external pressure trigger
MKS Instruments, Inc.	63/278837		Methods and systems for feedback control in plasma processing using radical sensing
MKS Instruments, Inc.	17/455626		Method and apparatus for pulse gas delivery with pressure control
MKS Instruments, Inc.	63/289438		Dissolved ammonia delivery system and methods of use
MKS Instruments, Inc.	17/566274		Real-time, non-invasive iedf plasma sensor
MKS Instruments, Inc.	17/643866		Intermodulation distortion mitigation using electronic variable capacitor

12 Patents recorded on April 26, 2022 at Reel 059804 and Frame 0001

Owner	App. No.	Patent No.	Title
MKS Instruments, Inc.	17/647,239		Ion Source with Gas Delivery for High-Fidelity Analysis
MKS Instruments, Inc.	17/651,751		Method and Apparatus for Pressure Based Mass Flow Controller
MKS Instruments, Inc.	63/298,825		Pulse and Bias Synchronization Methods and Systems

MKS Instruments, Inc.	17/590,874		Apparatus and Methods for Microwave-Assisted Surface Chemistry Annealing of ALD Processes Utilizing Microwave Radiation Energy
MKS Instruments, Inc.	17/583,712		Multi-Sensor Gas Sampling Detection System for Radial Gases and Short-Lived Molecules and Method of Use
MKS Instruments, Inc.	63/302,931		Power Combiner Having Integrated Thermal Management System and Methods of Manufacture
MKS Instruments, Inc.	17/656,177		Method and Apparatus for Improving Mass Flow Verification Accuracy
Electro Scientific Industries, Inc.	63/302,887		High Accuracy, Illumination-agnostic, Auto Focus Algorithm for High Contrast Features
Electro Scientific Industries, Inc.	63/304,349		Germanium AOD system with parallel and perpendicular polarizations
Electro Scientific Industries, Inc.	17/633,828		Reduced Impedance Variation in a Modular 2-Terminal Contacting Electrical Measurement System
Electro Scientific Industries, Inc.	63/314,437		Optical power equalization for thermal stability of AODs
Electro Scientific Industries, Inc.	63/314,438		Optical power equalization for thermal stability of AODs