NPA

LEGACY PRODUCT UPDATE

Member IMC Group Ingersoll Cutting Tools

New Product Announcement

HOLEMAKING

Series
QA

Diameter Range
2.125-3.125"

Length/Diameter Ratio
2xD
3xD

Grades
IN2005
Steel/General Purpose
IN2010
Cast Iron
IN6520
CVD-Outboard pocket only
IN1030
Exotics/High Temp Alloy
IN10K
Non-Ferrous

Materials
- Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous

QUADDRILL+™

Series QA - Adjustable Cartridge Drills

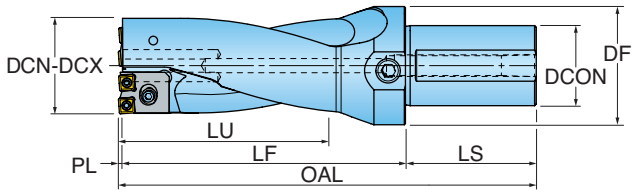
» Adjustable cartridges allow one body to create a range of diameters
» Uses existing QuadDrill+ inserts
» Same insert can be used in both pockets (inboard and outboard)
» 2 coolant port locations: Thru flange and thru shank
» Reduces drill inventory providing cost savings

See full Line »

ingersoll-imc.com

Series QA

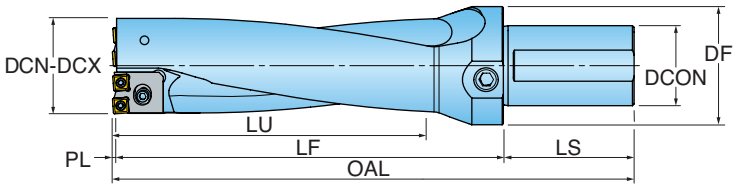
2XD ADJUSTABLE CARTRIDGE DRILL



Part Number	DCN Cutting Dia. Min.	DCX Cutting Dia. Max.	PL Point Length	LU Usable Length	LF Functional Length	LS Shank Length	OAL Overall Length	DCON Shank Dia.	DF Flange Dia.	ZNF Face Insert Count
	INCH (MM)	INCH (MM)								
QA0540111N8R01	2.125 (53.98 mm)	2.188 (55.58 mm)	0.050	4.41	5.980	3.25	9.23	2.0000	2.37	4
QA0572121N8R01	2.250 (57.15 mm)	2.375 (60.33 mm)	0.056	4.82	6.690	3.25	9.94	2.0000	2.37	4
QA0619130N8R01	2.438 (61.93 mm)	2.563 (65.10 mm)	0.055	5.13	7.170	3.25	10.42	2.0000	2.37	4
QA0667143N8R01	2.625 (66.68 mm)	2.813 (71.45 mm)	0.060	5.67	7.990	3.25	11.24	2.0000	2.37	4
QA0730159N8R01	2.875 (73.03 mm)	3.125 (79.38 mm)	0.063	6.25	8.270	3.25	11.52	2.0000	2.37	4

Series QA

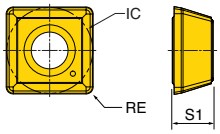
3XD ADJUSTABLE CARTRIDGE DRILL



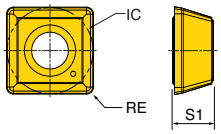
Part Number	DCN Cutting Dia. Min.	DCX Cutting Dia. Max.	PL Point Length	LU Usable Length	LF Functional Length	LS Shank Length	OAL Overall Length	DCON Shank Dia.	DF Flange Dia.	ZNF Face Insert Count
	INCH (MM)	INCH (MM)								
QA0540167N8R01	2.125 (53.98 mm)	2.188 (55.58 mm)	0.050	6.61	8.190	3.25	11.44	2.0000	2.37	4
QA0572181N8R01	2.250 (57.15 mm)	2.375 (60.33 mm)	0.056	7.23	9.130	3.25	12.38	2.0000	2.37	4
QA0619195N8R01	2.438 (61.93 mm)	2.563 (65.10 mm)	0.055	7.69	9.760	3.25	13.01	2.0000	2.37	4
QA0667214N8R01	2.625 (66.68 mm)	2.813 (71.45 mm)	0.060	8.50	10.870	3.25	14.12	2.0000	2.37	4
QA0730238N8R01	2.875 (73.03 mm)	3.125 (79.38 mm)	0.063	9.38	11.420	3.25	14.67	2.0000	2.37	4

Inserts

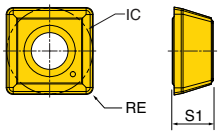
-PH



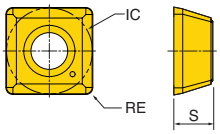
-PH1



N



-HP



Part Number	L Cutting Edge Length	S1/S Thickness	RE Corner Radius	DCN Cutting Diameter Min.	DCX Cutting Diameter Max.	NOI Number of Indexes	Carbide Grades						
							IN10K	IN2005	IN2505	IN2530	IN2010	IN1030	IN6520
SPLT07T308N-PH	0.313	0.163	0.031	2.125	2.188	4		•	•			•	•
SHLT090408N-PH1	0.386	0.169	0.031	2.250	2.563	4		•				•	•
SHLT110408N-PH1	0.453	0.189	0.031	2.625	2.813	4		•		•		•	•
SPLT120408N-PH	0.492	0.193	0.031	2.875	3.125	4		•				•	
SPLT07T308N	0.313	0.163	0.031	2.125	2.188	4					•		
SHLT090408N	0.386	0.169	0.031	2.250	2.563	4					•		
SHLT110408N	0.453	0.189	0.031	2.625	2.813	4					•		
SDGT07T308-HP	0.313	0.156	0.031	2.125	2.188	4	•						
SHGT090408-HP	0.386	0.169	0.031	2.250	2.563	4	•						
SHGT110408-HP	0.453	0.189	0.031	2.625	2.813	4	•						

Diameter Range (inch)	General Purpose/Steel	Cast Iron	Non-Ferrous
2.125-2.188	SPLT07T308N-PH	SPLT07T308N	SDGT07T308-HP
2.250-2.563	SHLT090408N-PH1	SHLT090408N	SHGT090408-HP
2.625-2.813	SHLT110408N-PH1	SHLT110408N	SHGT110408-HP
2.875-3.125	SPLT120408N-PH	-	-

Carbide Grades

IN2005 (PVD) - GENERAL PURPOSE

- Sub-micron grade with high hardness and toughness
- New Multi-layered coating for higher chipping resistance
- Post-coat surface treatment improves chipping resistance and reduces cutting forces
- First choice for general applications
- Inboard and outboard pockets

IN2010 (PVD) - CAST IRON

- Sub-micron grade with high hardness and toughness
- New multi-layered coating for higher chipping resistance
- Post-coat surface treatment improves chipping resistance and reduces cutting forces
- Inboard and outboard pockets

IN6520 (CVD) - STEEL APPLICATION

- Multi-layered CVD coating along with post coat surface treatment provides excellent wear resistance and improves chipping resistance
- Peripheral (Outboard) pocket only

IN1030 (PVD) - CAST IRON, ALUMINUM, STAINLESS, TITANIUM

- Tough, slower speed applications
- If inboard chipping is an issue, IN1030 can tolerate low SFM
- More forgiving when machine rigidity is an issue

IN10K (UNCOATED) - ALUMINUM

- Polished
- Upsharp

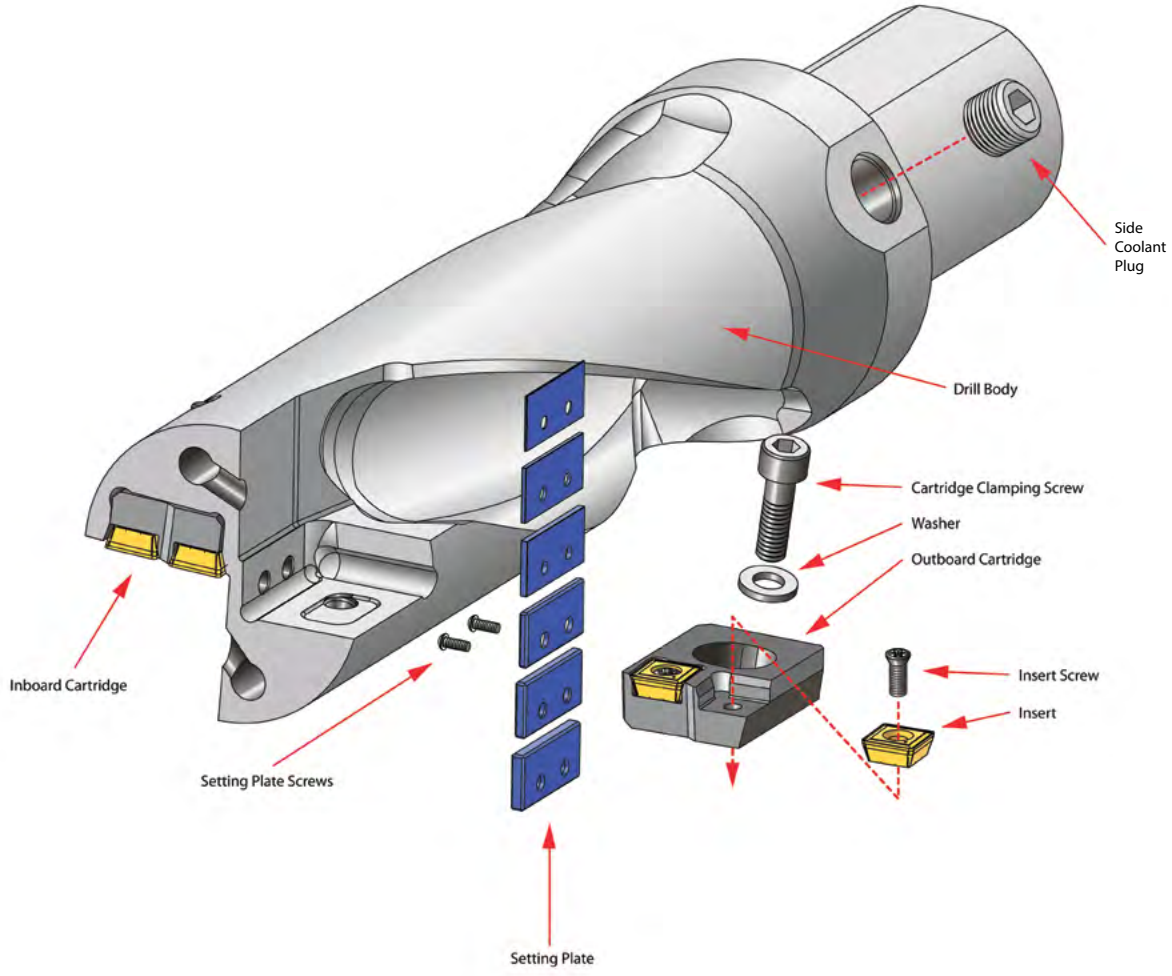
Spare Parts

Part Number	Insert Screw	Insert Wrench	Side Coolant Plug
QA0540	SM25-064-00	DS-T08W	PP04-01
QA0572	SM35-088-60	DS-T10T	PP04-01
QA0619	SM35-088-60	DS-T10T	PP04-01
QA0667	SM40-092-20	DS-T15T	PP04-01
QA0730	SM40-093-20	DS-T15T	PP04-01

Part Number	Outboard Cartridge	Inboard Cartridge	Cartridge Clamping Screw	Cartridge Mounting Washer	Allen Wrench
QA0540	55E223R01	55E213R01	SD040-16	WA004-01	L-W3
QA0572	55F243R02	55F233R01	SD050-16	WA005-01	L-W4
QA0619	55F263R01	55F243R03	SD050-16	WA005-01	L-W4
QA0667	55G294R01	55G264R01	SD060-20	WA006-01	L-W5
QA0730	55H314R00	55H294R00	SD060-20	WA006-01	L-W5

Part Number	Setting Plate	Setting Plate Thickness (inch)	Nominal Diameter	Setting Plate Screw	Setting Plate Wrench
QA0540	DS07-080-01	0.031	2.188	SM20-043-00	DS-TPS06S
QA0572	DS09-080-01	0.031	2.313	SM30-055-10	DS-T09W
	DS09-159-01	0.063	2.375		
QA0619	DS09-080-01	0.031	2.500	SM30-055-10	DS-T09W
	DS09-159-01	0.063	2.563		
QA0667	DS11-080-01	0.031	2.688	SM30-055-10	DS-T09W
	DS11-159-01	0.063	2.750		
	DS11-238-01	0.094	2.813		
QA0730	DS11-080-01	0.031	2.938	SM30-055-10	DS-T09W
	DS11-159-01	0.063	3.000		
	DS11-238-01	0.094	3.063		
	DS11-320-01	0.125	3.125		

Series QA Drill Assembly



SERIES QA PACKAGE

Each drill will be packaged with the following:

- Drill Body - 1 piece
- Inboard Cartridge - 1 piece
- Outboard Cartridge - 1 piece
- Required Setting Plates
- Setting Plate Screws - 2 pieces
- Cartridge Screws - 2 pieces
- Insert Screws - 6 pieces (2 extra)
- Cartridge Washer - 2 pieces
- Wrenches/Drivers - 3 pieces (cartridge, insert, setting plate)
- Side Coolant Plug - 1 piece

*** Order inserts separately.**

Operating Guidelines

Materials				Condition	Tensile Strength (N/mm2)	HB Hard-ness	Vc Cutting Speed SFM	Feed vs. Drill Diameter (inches/rev)			
ISO	Mtl Group No.	Type						Inch (mm) 2.125-2.188 (53.9-55.5)	Inch (mm) 2.250-2.563 (57.1-65.1)	Inch (mm) 2.625-2.813 (66.7-71.5)	Inch (mm) 2.875-3.125 (73.0-79.4)
P	1	Non-alloy steel , cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	590-825	.002-.005	.002-.005	.002-.005	.002-.005
	2		>= 0.25 %C	Annealed	650	190	530-825	.002-.006	.002-.006	.002-.006	.002-.006
	3		< 0.55 %C	Quenched and Tempered	850	250	460-790	.003-.006	.003-.006	.003-.007	.003-.007
	4		>= 0.55 %C	Annealed	750	220	460-790	.003-.006	.003-.006	.003-.007	.003-.007
	5		> 0.55 %C	Quenched and Tempered	1000	300	460-790	.003-.006	.003-.006	.003-.007	.003-.007
	6	Low alloy steel and cast steel (less than 5% of alloying elements)		Annealed	600	200	460-790	.003-.007	.003-.007	.003-.007	.003-.007
	7			Quenched and Tempered	930	275	330-590	.003-.007	.003-.007	.003-.007	.003-.007
	8				1000	300	330-590	.003-.007	.003-.007	.003-.007	.003-.007
	9				1200	350	330-590	.003-.007	.003-.007	.003-.007	.003-.007
	10	High alloy steel, cast steel, and tool steel		Annealed	680	200	460-660	.003-.007	.003-.007	.003-.007	.003-.007
	11			Quenched and Tempered	1100	325	330-530	.003-.006	.003-.006	.003-.006	.003-.006
M	12	Stainless steel & Cast iron		Ferritic/Martensitic	680	200	560-790	.002-.005	.003-.006	.003-.006	.003-.006
	13			Martensitic	820	240	560-790	.002-.005	.003-.006	.003-.006	.003-.006
	14			Austenitic	600	180	560-790	.002-.005	.003-.006	.003-.006	.003-.006
K	15	Grey cast iron (GG)		Ferritic		160	590-825	.005-.008	.005-.008	.005-.009	.005-.009
	16			Pearlitic		250	590-825	.005-.008	.005-.008	.005-.009	.005-.009
	17	Cast iron nodular (GGG)		Ferritic		180	590-825	.005-.008	.005-.008	.005-.009	.005-.009
	18			Pearlitic		260	590-825	.005-.008	.005-.008	.005-.009	.005-.009
	19	Malleable cast iron		Ferritic		130	390-730	.004-.007	.004-.007	.005-.008	.005-.008
	20			Pearlitic		230	390-730	.004-.007	.004-.007	.005-.008	.005-.008
N	21	Aluminum - Wrought alloy		Not cureable		60	660-1155	.002-.007	.002-.007	.002-.007	.002-.007
	22			Cured		100	660-1155	.002-.007	.002-.007	.002-.007	.002-.007
	23	Aluminum-cast, alloyed	<=12 %Si	Not cureable		75	660-1155	.002-.007	.002-.007	.002-.007	.002-.007
	24			Cured		90	660-1155	.002-.007	.002-.007	.002-.007	.002-.007
	25		>12% Si	High temp		130	660-1155	.002-.007	.002-.007	.002-.007	.002-.007
	26	Copper alloys	>1% Pb	Free cutting		110	495-825	.004-.007	.004-.007	.004-.007	.004-.007
	27			Brass		90	495-825	.004-.007	.004-.007	.004-.007	.004-.007
	28			Electrolitic copper		100	495-825	.004-.007	.004-.007	.004-.007	.004-.007
	29	Non-metallic		Duroplastics, fiber plastics			495-825	.004-.007	.004-.007	.004-.007	.004-.007
	30			Hard rubber			495-825	.004-.007	.004-.007	.004-.007	.004-.007
S	31	High temp alloys	Fe based	Annealed		200	100-200	.002-.004	.002-.004	.002-.004	.002-.004
	32			Cured		280	100-200	.002-.004	.002-.004	.002-.004	.002-.004
	33		Ni or Co based	Annealed		250	100-200	.002-.004	.002-.004	.002-.004	.002-.004
	34			Cured		350	100-200	.002-.004	.002-.004	.002-.004	.002-.004
	35			Cast		320	100-200	.002-.004	.002-.004	.002-.004	.002-.004
	36	Titanium, Ti alloys			Rm 400		165-265	.002-.004	.002-.004	.002-.004	.002-.004
	37			Alpha+Beta alloys cured	Rm 1050		165-265	.002-.004	.002-.004	.002-.004	.002-.004
H	38	Hardened Steel		Hardened		55 HRC	100-200	.002-.004	.002-.004	.002-.004	.002-.004
	39			Hardened		60 HRC	100-200	.002-.004	.002-.004	.002-.004	.002-.004
	40	Chilled cast iron		Cast		400	100-200	.002-.004	.002-.004	.002-.004	.002-.004
	41	Cast iron nodular		Hardened		55 HRC	100-200	.002-.004	.002-.004	.002-.004	.002-.004

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.