## Genealogy of Business Operations

1928	1940	1950	1960	1970	1980	19	90	2000	2	2005	
ing Hacksaw s Drills End n	s Becoming a comprehens hills G	Metal band s Taps sive tool maker sear shapers and cutte	saws Molds Advancements in c Car ers	Bi-metal band saws carbide tools rbide drills	G coated tools	CBN and diamond tools lowderized HSS FAX tools	ncreasing carbide coated tools	Eco & ECO Expansion of environmentally friendly cutting and machine tools	Business tie up with Sumitomo Electric/ Allied Materials	Precision molding AG drills GS mills AG mil	G
Hobs	Large Broaches	Shavir e diameter broaches <b>Christma</b>	ng cutters as tree broaches	Expanding into	o coatings Coate	Diamond coated tools ed hobs	SG drills		Dual cutting hobs Semi-dry broaches	MQL Power Long D	Drill Hard broache
egan domestic production of	cutting tools mach	& In-house	facilities/grinding tec	hnology t	Coating technologies	Strengthened c broaches and b	onnections between proaching machines		For Ge	mation of ar Production Alliance (	GPA) Exp
Mach Tools	Drill fabricatii equipment Bearing gri Broachin	ing Broach grinde inders Developin specialized ing machines Large-s	ers Transmissions og a variety of In-line d machines scale broaching mac	s Precision form rolling machines center Internal surfor Horizontal broach based on grindl concentration	Creation of Set up r broaching machine serie ace grinders Broachi ing machines precision machine tool ing technology,	naintenance and service of es ing machines with ible upright workpiece <sub>is</sub> Air spindles Precision machine tools	perations Micro grinders Rotary grinders	NC helical broaching machines Precision slicers Free-form surface machine too	High-speed finishing broaching machine Machine-mou measuring tec s Free-form surface mold	MQL power cell nted Consolidati hnologies Jet finisher	Hard broaching on of grinding on
1020 Cut			M	and control tec	hnologies	Surface grinders	equipment	Image measuring systems	torming equipment	Nano groov	er
bearing	production facilitie	es set up in-house Grinding Me	Mechanic grinding echanization	cal elements/ g technology				Electronic co	ntrol technology		
In-h	ouse production facilities	Hydraulic control technologies	Rob	Develop first elect articulate	s Electric-dri Painting ment of world's tric drive ed welding robot	ve welding robots g robots Set up me service of	Handling robot aintenance and perations	Various sensors Vision sensor Established serie standard weldin transfer robots Modularization Robots mounted on runners	s of g and Business tie up with Daihen Heavy handlin	ollers for transferring ubstrates Ne duty g robots SC700	ew compact plat ith 6 and 7 axes j V
Bearin	n <b>gs</b> Ball bearin Roller b Sohe	ngs Bearings for railway cars bearings Expansion bearings erical roller bearings	1968 S autom hydrau Jet engine bea n of special-purpose Shinkanser (jointly dev special ste	tet up operations to nation technology a ulic control technology rings Develop hot press technology for inner/outer rings n bearings reloped with els section)	apply machine tool nd 2gy s forming <b>Automotive</b> Triple-race bearings learings for De learings for De co	PM of production facilities air conditioning bearings Roller bearings for synchronized joints Bus Koy evelopment of long-life bear opperation with special stee	s Excel series 4-point contact ball bearing siness tie-up with yo Seiko orings in is section	Production loca Thailand St TISCO (India) th provided with technology Sealed support b	alized in Established joi Shanghai Auto rengthening production syste ree regions worldwide Seismic isolation earings	nt venture with motive Industry Corpor m in systems <b>lagni Cradle</b>	ation Group in C Quest
1939 Set	up operations to c	apply grinding and						1 н	igh-performance bearing stee	el "MS Steel"	
with high	-quality materials			Materials technology re	High eliability 1989 Expa	Inded s based on	notive ulics	Automotive solenoid valves ( AYC un Automotive 3-w	t Strengthe hydraulics	ned automotive s operations	-compact loid valve for mobiles
Optimized mate	prials	Hydrau Equipn	Hydraulic v nent Hydraulic Hydraulic Hydraulic	vane pumps I P pumps c valves Modular valves aulic units	high-reliat Swing for co Development of hydro-logic system Vari	bility of bearings and hydrogeneric sectors and drive motors onstruction equipment or contraction prices and the sector sector sector sectors of the sector sector sector sector sectors and sectors a	draulic control technolog ben markets for nstruction equipment home and abroad pumps for ial machinery	y Developme load sensing Standard energy-saving hydraulic units	nt of Seismic isol system Drive motors V for skid steer loaders Power Meister	ation systems alve with monitoring swi	itch vdraulic unit
		1958 Starte and other	ed internal manufã equipment to star	acturing of broachin t in-house productic	g machines on of cutting tools						
Spec Steels	HSS (high-s Alloy tool s	speed tool steel) iteels	Developm high-qualit for the Shir	ient of Powd ty bearing steel hkansen	erized HSS FAX series Pre-s	Dot pins Supe	er-Bright wire	High-performance b Pre-Harden 4000 Original steel for molds	earing steels Busine	ss tie up with Erasteel (Fr Hard Cl	rance) DC process Micro
	Bearing ste	furnace and st production of h	rarted HSS C	Cermet alloy	Pre-harden	ed rods Sp	evelopment of HSS for pecific applications	Business tie-up with Daido Steel/I	Riken Seiko		
1938 Star specialize and integ	ted in-house prod ed steels for cutting grated production	luction of g tools and bearing n system	gs Applicatio characteri	n of istics of materials	Coating technologies	Specialized heat treatment	t technologies		In w	nproved surfaces rith high-performance c	oatings
from ma	terials to end prod	lucts	strial Sc	alt baths Development in collaborat	nt of TiC coating Vacuu tion with Cutting Tools Div	um heat treatment furnaces vision	S	Vacuum c furnaces	arburizing DLC coat	ing	In-li equ
	Optimal heat treatme	ent and 1964 Se	Coatings et up operations u	Nitriding furnace	es Hybrid furnaces (	Coating furnaces Develo	opment ious coatings	degreasing machines BSE i	ncinerators vacuum carbu	ot continuous rizing furnaces	Hybrid coatings
4000	4040	heat tr	eatment develop	ed for cutting tools o	and bearings			2000		2005	
1928	1940	1950	1960	19/0	1980	19	90	2000	2	2005	

