XIV. Research & Development

R&D Investment

	Unit	2011	2012	2013	2014
R&D investment	Million RMB	5,174	4,064	3,644	3,884
R&D expenditure/revenue	percentage	2.34	2.13	1.92	2.11

R&D Organization and R&D Personnel

The Technology Center of Baoshan Iron & Steel Co., Ltd. (including such centers in its subsidiaries):1,108 persons
Among them:
Researching staff: 737 persons Technical staff: 298 persons Administrative staff: 73 persons

New Intellectual Property Rights Obtained in China in 2014

Invention patents	Utility model patents	Software copyrights
265 pieces	372 pieces	39 pieces

Scientific and Technological Achievements

Year	Total	Major achievements
2011	189	R&D and application of two piece steel can tinplate (Second prize, National Science and Technology Progress Award)
		R&D on process and complete set of equipment for high speed pickling and rolling of ultra-thin steel strip"(Grand prize, China Metallurgical Science and Technology Award)
		Research on independent integration of UOE Welded Tube Technology (First prize, China Metallurgical Science and Technology Award)
		Equipment and Application of on-line Spray Printing for Metallurgical Products (Second prize, China Metallurgical Science and Technology Award)
		Blast furnace multi-statistics integrated testing and comprehensive system for energy saving and optimization (Second prize, China Metallurgical Science and Technology Award)
		Research and application of the model for 5-meter heavy plates (Third prize, China Metallurgical Science and Technology Award)
2012	191	Advanced high-strength thin strip flexible manufacturing technology and equipment (Second prize, National Awards for Science and Technology Invention)
		Development and Industrialization of Low Temperature High Magnetic Induction Grain-oriented Silicon Steel Manufacturing Technology (Grand Prize, China Metallurgical Science and Technology Award)
		Research and Development on Integrated Technologies in Advanced High Strength Thin Strip Steel in aspects of Products, Process and Equipment (First prize, Shanghai Science and Technology Progress Award)
		Development and Application of New Performance Assessment Method on High Reactivity Coke (First prize, China Metallurgical Science and Technology Progress Award)
		Development and Application of Roll Production Line Optimization System (First prize, China Metallurgical Science and Technology Progress Award)
		Development of Key Technology to Electric Arc Furnace Continuous Casting Bloom (Second prize, China Metallurgical Science and Technology Progress Award)
2013	130	Manufacturing technology development and industrialization of low-temperature high-magnetic induction grain-oriented silicon steel (First prize, National Awards for Science and Technology)
		Manufacturing technology and industrialization of advanced high-strength thin strip steel (Special prize of metallurgical science and technology award)
		Key technology and industrial application of high-efficiency RH vacuum refining (First prize, China Metallurgical Science and Technology Progress Award)
		Research and application of steel pipe for 600 ℃ ultra-supercritical thermal power unit (First prize, China Metallurgical Science and Technology Progress Award)
2014	131	Research and application of steel pipe for 600 ℃ ultra-supercritical thermal power unit (First prize, National Awards for Science and Technology)
		R&D of cold-rolled hot-galvanizing aluminizing and zinc unit core technology and complete set (First prize, China Metallurgical Science and Technology Progress Award)
		Core technology research, equipment Development, application promotion of band steel surface quality online detection (Second prize, China Metallurgical Science and Technology Progress Award)
		R&D and application of thick plate cold straightening mechanism model, technology and equipment (Second prize, China Metallurgical Science and Technology Progress Award)
		Development and industrialization of high-grade non-oriented silicon steel manufacturing technology (First prize, Shanghai Science and Technology Progress Award)