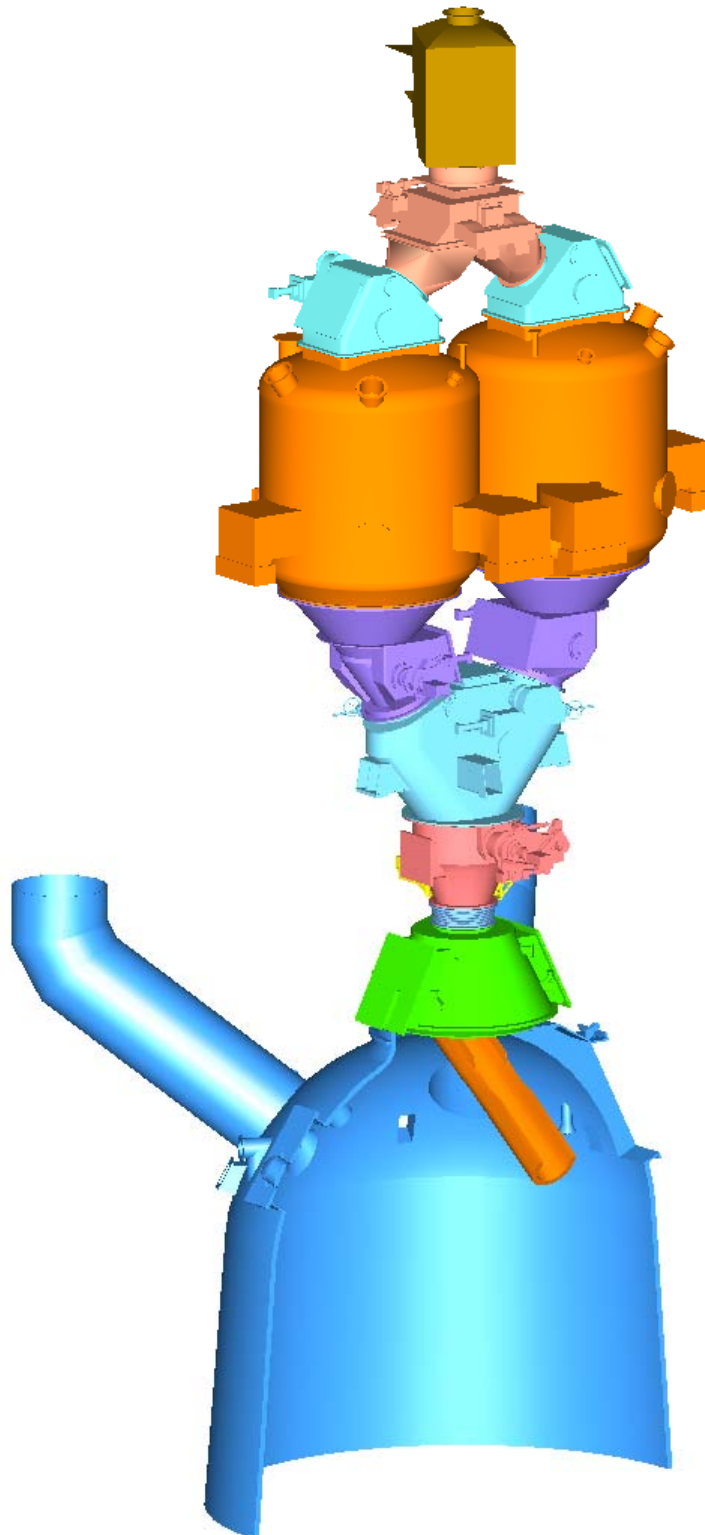


Top Charging System



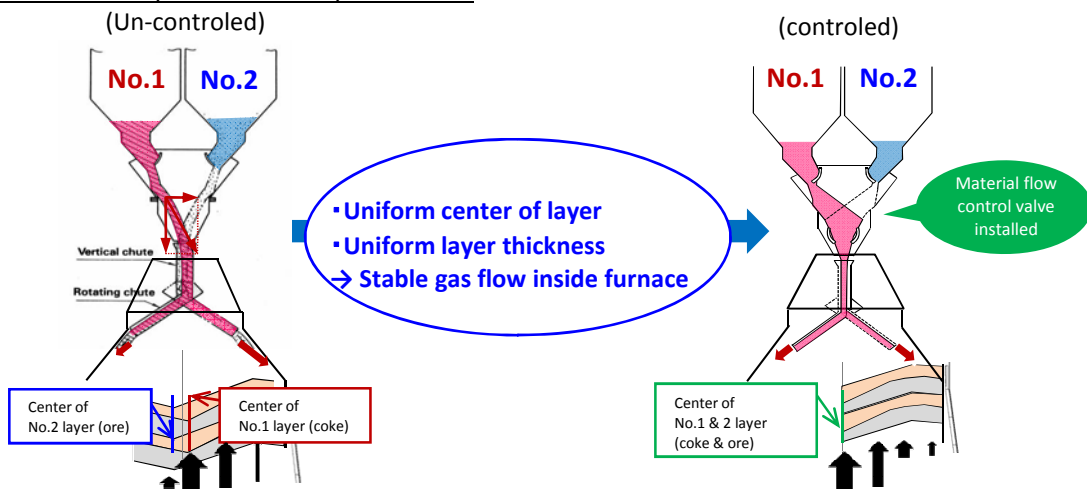
Top Charging System

Top Charging System

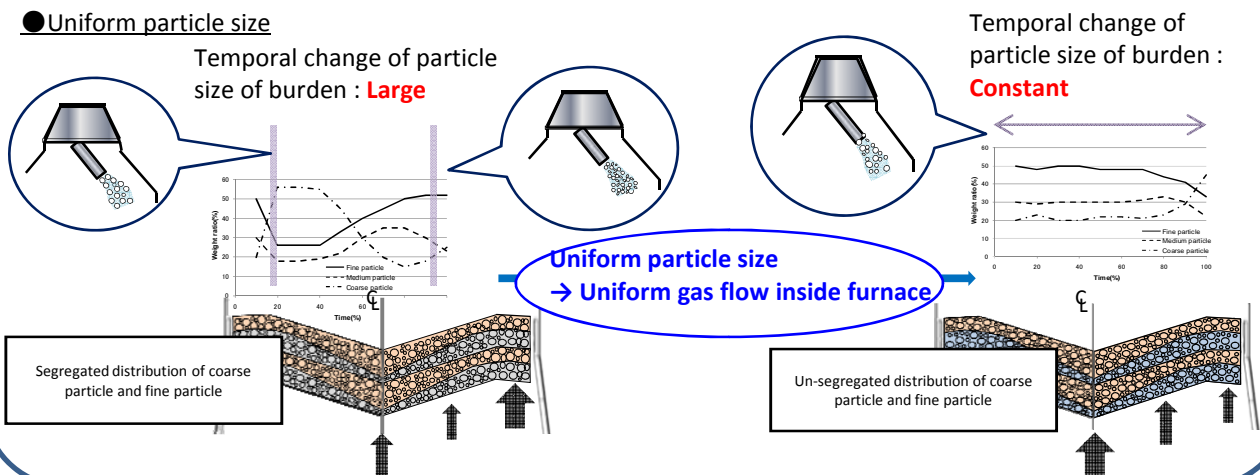
* Nippon Steel & Sumikin Engineering has supplied 80 or more units of blast furnaces and delivered two types of top charging system: bell type and bell-less type according to the customer needs.
 * For the stable operation of blast furnace, it is important to uniformly charge burden peripherally. Nippon Steel & Sumikin Engineering's top charging system has the function for realizing such requirement.

Anti-segregation technology

● Uniform center of layer & Uniform layer thickness



● Uniform particle size



Stable running

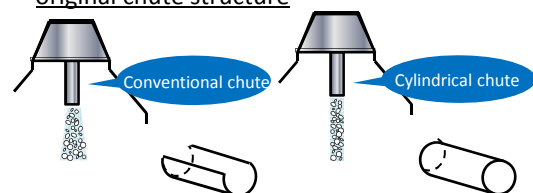
Service life : 15 years

● Nippon Steel & Sumikin Engineering's original chute drive unit

* Structure to reduce wear on large bearing of slewing chute drive unit

Center feed of coke

● Nippon Steel & Sumikin Engineering's original chute structure



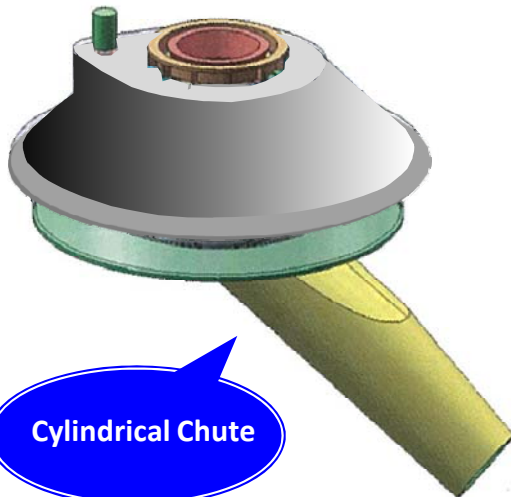
Accuracy for center feed is enhanced by the cylindrical chute.

Top Charging System

New type BF charging equipment

Nippon Steel & Sumikin Engineering developed a new type top charging system for the purpose of enhancing the raw material charging accuracy.

* Nippon Steel & Sumikin Engineering is planning to carry out a model test using a prototype with a chute of approx. 2m length.



Cylindrical Chute



- Simple&Compact structure→Manufacturing cost is unexpensive.
- Short free fall length of material & varying material impact area by rotating chute → Chute liner life is long.
- High-speed tilting → It is possible to shorten the time of center feed, which is normally the bottleneck for the time schedule.

Supply record

Actual result of delivery : 82unit

* Table below covers the latest 10 cases.

	No.	Year	Country	Customer	Contents	Remarks
Top Charging System	1	2001	Japan	Nippon Steel	Chute-type(Vertical double-stage hopper)	Kimitsu 3BF
	2	2002	Japan	Hokkai	Chute-type(Vertical double-stage hopper)	2BF
	3	2003	Japan	Nisshin Steel	Chute-type(Parallel doublestage hopper)	Kure 2BF
	4	2003	Japan	Nippon Steel	Chute-type(Vertical double-stage hopper)	Kimitsu 4BF
	5	2004	Japan	Nippon Steel	Bell type	Oita 2BF
	6	2007	Japan	Nippon Steel	Chute-type(Parallel doublestage hopper)	Nagoya 1BF
	7	2007	Japan	Kobe Steel	Bell type	Kakogawa 2BF
	8	2009	Japan	Nippon Steel	Bell type	Oita 1BF
Total	9	2012	Japan	Nippon Steel	Chute-type(Parallel doublestage hopper)	Kimitsu 2BF
82 Unit	10	2014	Japan	Nippon Steel	Chute-type(Parallel doublestage hopper) (under designing)	Tobata 4BF