

SINCE 1969, THERE HAVE BEEN NEARLY 100 MIDREX™ SHAFT FURNACE DIRECT REDUCTION MODULES BUILT AROUND THE WORLD.

MIDREX™ plants are able to perform reliably at or above rated capacity in climates that range from the dry, sandy heat of Saudi Arabia to the frigid cold of Canada and Russia. To date only three MIDREX™ modules have ever been decommissioned, the two small demonstration plants commissioned in Portland, Oregon in 1969 and the first full sized commercial scale plant commissioned in Georgetown, South Carolina, USA in 1971. Much of the equipment from the Georgetown facility remains in operation at sister plants operated by the same owner. The following is a partial list of reference plants.*

PLANT	LOCATION	DESIGN CAPACITY (MT/Y)	SHAFT FURNACE MODULES	PRODUCT	START-UP
MIDREX™ PROCESS					
Oregon Steel Mills 1 Pilot Plant ¹	Portland, Oregon, USA	0.08	1	CDRI	'69
ArcelorMittal Georgetown ²	South Carolina, USA	0.40	1	CDRI	'71
ArcelorMittal Hamburg	Hamburg, Germany	0.40	1	CDRI	'71
ArcelorMittal Canada 1	Contrecoeur, Quebec, Canada	0.40	1	CDRI	'73
TenarisSiderca	Campana, Argentina	0.40	1	CDRI	'76
ArcelorMittal Canada 2	Contrecoeur, Quebec, Canada	0.60	1	CDRI	'77
SIDOR I	Matanzas, Venezuela	0.35	1	CDRI	'77
Acindar	Villa Constitucion, Argentina	0.60	1	CDRI	'78
Qatar Steel I	Mesaieed, Qatar	0.40	1	CDRI	'78
SIDOR II	Matanzas, Venezuela	1.28	3	CDRI	'79
TT Iron Steel Company Ltd. I & II (ex CIL DRI & II)	Point Lisas, Trinidad & Tobago	0.84	2	CDRI	'80/'82
Delta Steel	Warri, Nigeria	1.02	2	CDRI	'82
Hadeed A & B	Al-Jubail, Saudi Arabia	0.80	2	CDRI	'82/'83
OEMK I - IV	Stary Oskol, Russia	1.66	4	CDRI	'83/'85/'87/'87
Antara Steel Mills	Labuan Island, Malaysia	0.65	1	HBI	'84
EZDK I	El Dikheila, Egypt	0.72	1	CDRI	'86
LISCO 1 & 2	Misurata, Libya	1.10	2	CDRI	'89/'90
ArcelorMittal Nippon Steel India I	Hazira, India	0.44	1	CDRI	'90
ArcelorMittal Nippon Steel India II	Hazira, India	0.44	1	HBI/HDRI	'90
FMO	Puerto Ordaz, Venezuela	1.00	1	HBI	'90
VENPRECAR	Matanzas, Venezuela	0.82	1	HBI	'90
ArcelorMittal Nippon Steel India III	Hazira, India	0.44	1	HBI/HDRI	'92
Hadeed C	Al-Jubail, Saudi Arabia	0.65	1	CDRI	'92
JSW Steel (Dolvi Works)	Raigad, India	1.00	1	CDRI	'94
EZDK II	El Dikheila, Egypt	0.80	1	CDRI	'97
LISCO 3	Misurata, Libya	0.65	1	HBI	'97
ArcelorMittal Lázaro Cárdenas	Lázaro Cárdenas, Mexico	1.20	1	CDRI	'97
COMSIGUA	Matanzas, Venezuela	1.00	1	HBI	'98
TT Iron Steel Company Ltd. III (ex CIL DRIII)	Point Lisas, Trinidad & Tobago	1.36	1	CDRI	'99
ArcelorMittal South Africa	Saldanha Bay, South Africa	0.80	1	CDRI	'99
EZDK III	El Dikheila, Egypt	0.80	1	CDRI	'00
ArcelorMittal Nippon Steel India IV	Hazira, India	1.00	1	HBI/HDRI	'04
Nu-Iron ³	Point Lisas, Trinidad & Tobago	1.60	1	CDRI	'06
ArcelorMittal Nippon Steel India V	Hazira, India	1.50	1	HBI/HDRI	'06
DRIC I & II ⁴	Dammam, Saudi Arabia	1.00	2	CDRI	'07
Hadeed E	Al-Jubail, Saudi Arabia	1.76	1	HDRI/CDRI	'07
LGOK HBI-2	Gubkin, Russia	1.40	1	HBI	'07
Qatar Steel 2	Mesaieed, Qatar	1.50	1	CDRI/HBI	'07
Lion DRI	Banting, Malaysia	1.54	1	HDRI/HBI	'08
ArcelorMittal Nippon Steel India VI	Hazira, India	1.50	1	CDRI	'10

PLANT	LOCATION	DESIGN CAPACITY (MT/Y)	SHAFT FURNACE MODULES	PRODUCT	START-UP
MIDREX PROCESS					
Jindal Steel Sohar	Sohar, Oman	1.50	1	HDRI/HBI	'10
NSCL (formerly Tuwairqi Steel Mills, Ltd)	Karachi, Pakistan	1.28	1	HDRI/CDRI	'13
SULB	Hidd, Bahrain	1.50	1	HDRI/CDRI	'13
JSW Steel (Toranagallu Works)	Toranagallu, Karnataka, India	1.20	1	HDRI/CDRI	'14
JSPL Angul	Angul, India	1.80	1	HDRI/CDRI	'14
ESISCO	Sadat City, Egypt	1.76	1	HDRI/CDRI	'15
ArcelorMittal Texas HBI	Corpus Cristi, Texas, USA	2.00	1	HBI	'16
LGOK HBI-3	Gubkin, Russia	1.80	1	HBI	'17
Tosyali Algérie 1	Oran, Algeria	2.50	1	HDRI/CDRI	'18
Cleveland-Cliffs Toledo HBI	Toledo, Ohio	1.60	1	HBI	'20
Algerian Qatari Steel	Bellara, Algeria	2.50	1	HDRI/CDRI	'21
Tosyali Algérie 2	Oran, Algeria	2.50	1	HDRI/CDRI	'24
Stegra	Boden, Sweden	2.10	1	HDRI/HBI	TBD
thyssenkrupp Steel Duisburg	Duisburg, Germany	2.50	1	HDRI/CDRI	TBD
Dillinger	Dillingen, Germany	2.00	1	HDRI/CDRI	TBD
Tosyali SULB	Benghazi, Libya	2.50	1	CDRI	TBD
Big River Steel	Osceola, Arkansas, USA	2.50	1	HDRI/HBI	TBD

FOOTNOTES

1. Original demonstration plants used to develop the MIDREX process; dismantled.
2. One of original MIDREX plants; dismantled, main process equipment redeployed to support more strategically located MIDREX plants.
3. Original module first built in the 1990s in the USA as the 1.2 mtpy AIR plant. Idled due to low industry demand and record high natural gas prices in North America. It was moved to Trinidad & Tobago in 2005 and expanded by Midrex Technologies, Inc. to a new design capacity of 1.6 mtpy.
4. Original modules first built in the 1970s in the UK and moved to USA in the late 1990s, then dismantled and moved again to Saudi Arabia in 2005-2006.

*There are additional MIDREX plants licensed by Kobe Steel, Ltd. of Japan

