

Dear Suvanuch Chirachanchai

Ecoseal Co. Ltd.,
Thailand.

Please find attached our complete sealing solution for Steel Plant having SMS make

Hot Strip Mill (HSM)

We have served world's largest steel producers including your company for over 15 years now. Hope to serve you for all your forthcoming Sealing requirements.

Spareage customers having SMS make Mill.



(Purchase/annum - ₹46 Million)



ArcelorMittal

Global (Purchase/annum - ₹38 Million)

South Africa
Khazkistan
Macedonia
Galati
France
Belgium
Bremen

TATA STEEL

Jamshedpur

(Purchase/annum - ₹4 Million)



(Purchase/annum - ₹7 Million)



(Purchase/annum - ₹3 Million)



ThyssenKrupp

Grobbelche
Bochum
Duisburg

Germany (Purchase/annum - ₹7 Million)

Spareage is technically capable of making complete solutions for different mills of SMS, CMI-FPE, Morgan, Siemens-VAI, Danieli, Hitachi etc giving our customers **cost saving of more than 45%** in comparison to other international seal suppliers.

Spareage supplies Seals to world's largest Steel Manufacturers



Raigad

(Purchase/annum - ₹19 Million)



قطر ستيل
QATAR STEEL Qatar

(Purchase/annum - ₹3 Million)



(Purchase/annum - ₹3 Million)



(Purchase/annum - ₹3 Million)



(Purchase/annum - ₹2 Million)



(Purchase/annum - ₹1 Million)

Complete Sealing solutions for SMS make Hot Strip Mill (HSM)

<p>Rotary Shaft Seals</p> 	<p>Hydraulic Seals</p> 	<p>V Belts</p> <p>Nirlon VBelts</p>  <p>A SPAREAGE Company</p>
		<p>O Rings</p> 

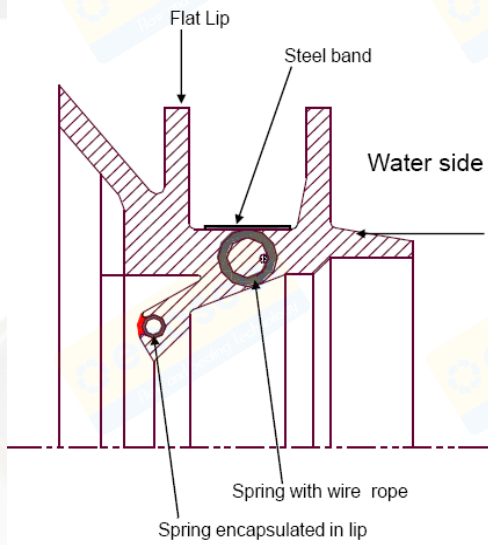
SMS make Hot Strip Mill (HSM)

Spareage provides complete sealing solution for SMS make Hot Strip Mill (HSM) for different applications in Roughing mill, Finishing Mill, Pickling line etc. Spareage seals are used in different equipments in HSM like Roll Chocks, Hydraulic cylinders, Pneumatic Cylinders, Gear Boxes, Motors, Valves and other major equipments.

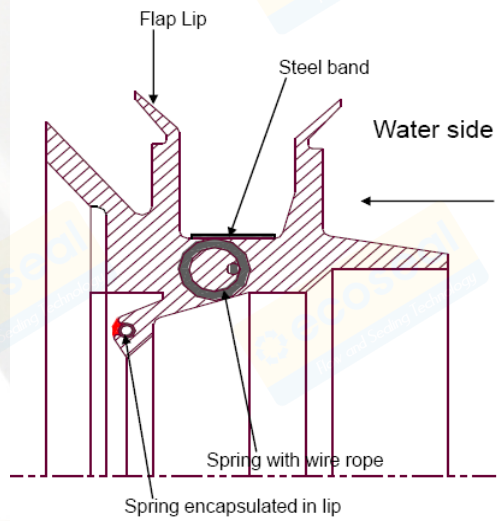
Neck Seals - Spareage ANA (X) & ANB (DF) Seals

Technical Features

Spareage – ANA style ('X' series)



Spareage – ANB style ('DF' series)



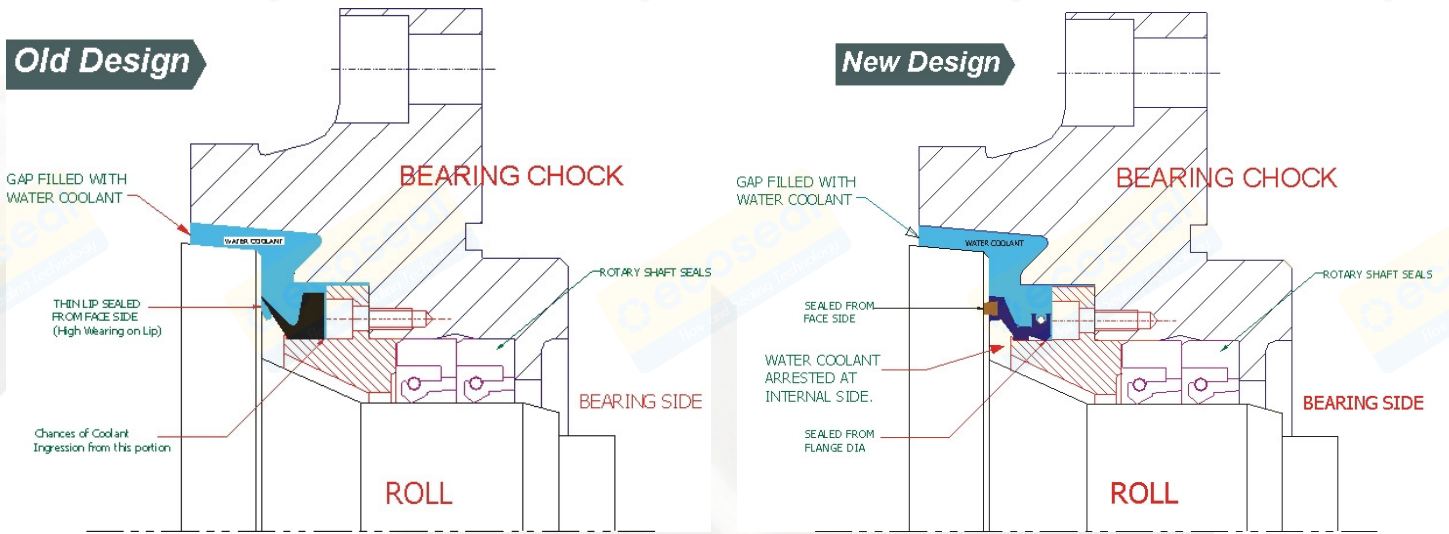
Development of "X" Series

Size	Spareage Part#	Customer
12"	ANA2030801	Morgan Constructions, India
16"	ANA2730801	Morgan Constructions, India
21"	ANA3690801	Morgan Constructions, India
		Vizag Steel Plant, India
44"	ANA7871001	Morgan Constructions, India
		Arcelor Mittal Steel, Macedonia
		Steel Authority of India, India
46"	ANA8150901	Arcelor Mittal Steel, Galati
48"	ANA8890801	Morgan Constructions, India
		Essar Steel Ltd., India
50"	ANA8980901	Thyssenkrupp Steel, Bochum

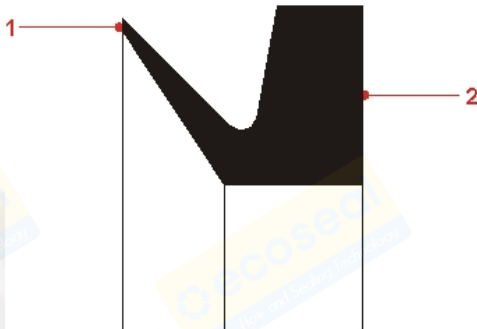
Development of "DF" Series

Size	Spareage Part#	Customer
10"	ANB1670801	Arcelor Mittal Steel, South Africa
11"	ANB1830801	
12"	ANB2030801	
14"	ANB2380801	
16"	ANB2830801	
18"	ANB3170801	Morgan Constructions, India
24"	ANB4256401	
44"	ANB7840901	Steel Authority of India, India
48"	ANB8410801	Essar Steel Ltd., India
50"	ANB8980901	Arcelor Mittal Steel, Galati
54"	ANB9581001	Arcelor Mittal Steel, Dunkerque

Spareage – Topguard V-Rings in Arcelor Mittal Plant Bremen, Germany

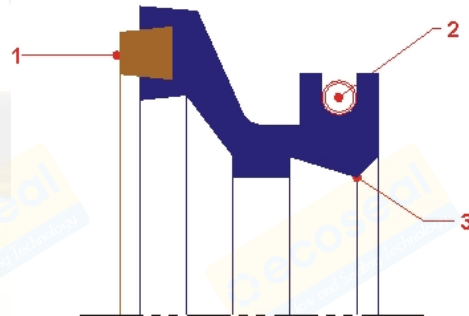


Old design V-Ring Concept



1. Thin Lip surface in contact with Roll face.
2. Flat body contact with uneven surface of the flange.

New design TOPGUARD concept



1. Bronze/PTFE ring insert lip for good wear resistance
2. Spring to hold the lip tight on diameter.
3. Sealing lip profile to seal coolant from back portion

Topguard Seals developed by Spareage

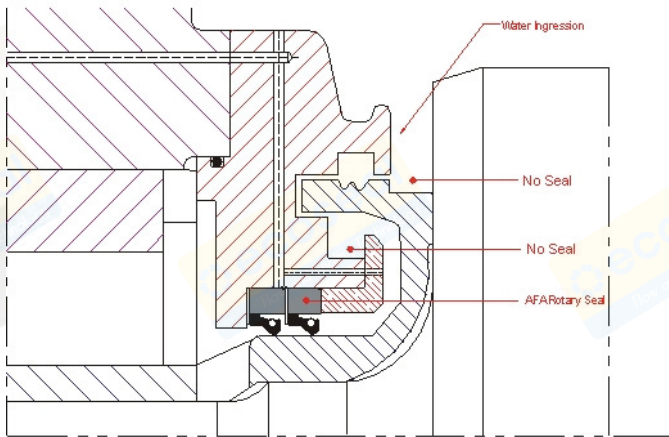
Shaft Ø 570	VZG570D501
Shaft Ø 650	VZG650D501
Shaft Ø 500	Z4950801

Shaft Ø 508	Z5080801
Shaft Ø 508	Z5080802
Shaft Ø 575	Z5750801

Complete sealing solution provided to Thyssenkrupp Duisburg, Germany

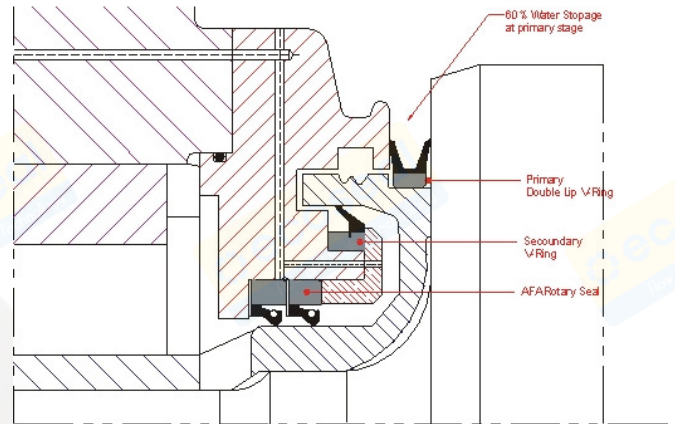
Spareage AFA Rotary Seal, VA and Double lip V-Ring

Old Sealing System



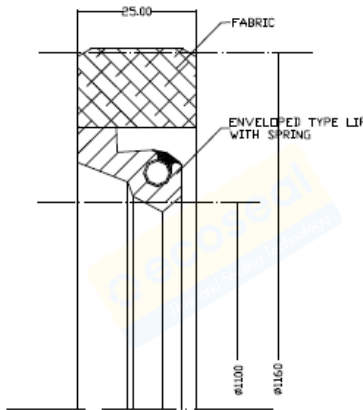
BACKUP ROLL CHOCK

New Spareage Sealing System

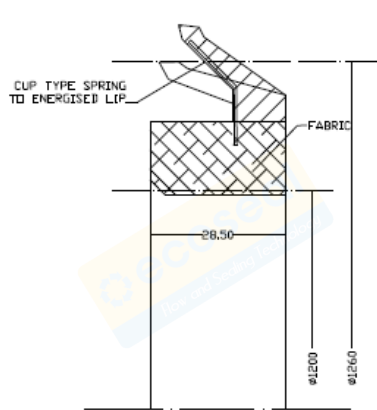


BACKUP ROLL CHOCK

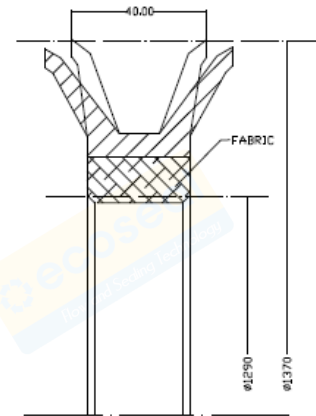
Technical Features



PART#	TYPE	MATL	TITLED-
1	ORING-1 OIL SEAL	NBR 70°	ROTARY SHAFT SEAL
SPAREAGE			
	DRG NO	DATE	SCALE
	060428-1	28/04/06	NT.S



PART#	TYPE	MATL	TITLED-
2	SPA V-RING	NBR/FABRIC 70°	COOLANT SEAL
SPAREAGE			
	DRG NO	DATE	SCALE
	060428-2	28/04/06	NT.S



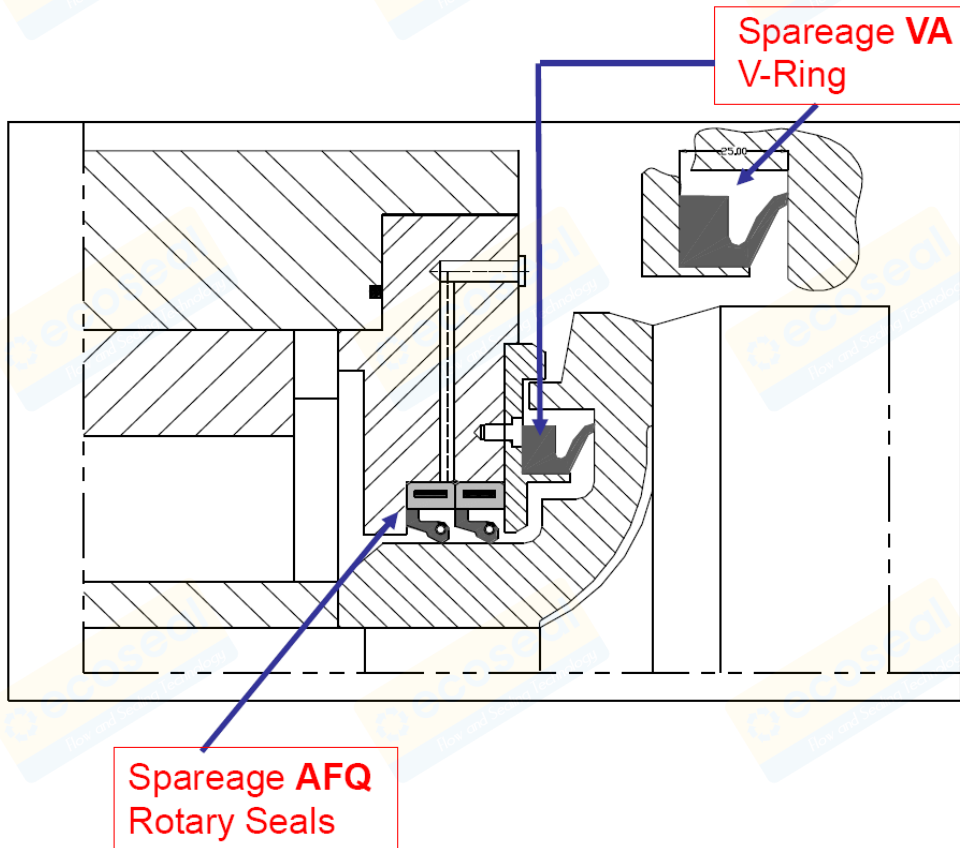
PART#	TYPE	MATL	TITLED-
3	SPA V-RING	NBR/FABRIC 70°	LIP SEAL
SPAREAGE			
	DRG NO	DATE	SCALE
	060428-3	28/04/06	NT.S

List of sizes developed by Spareage

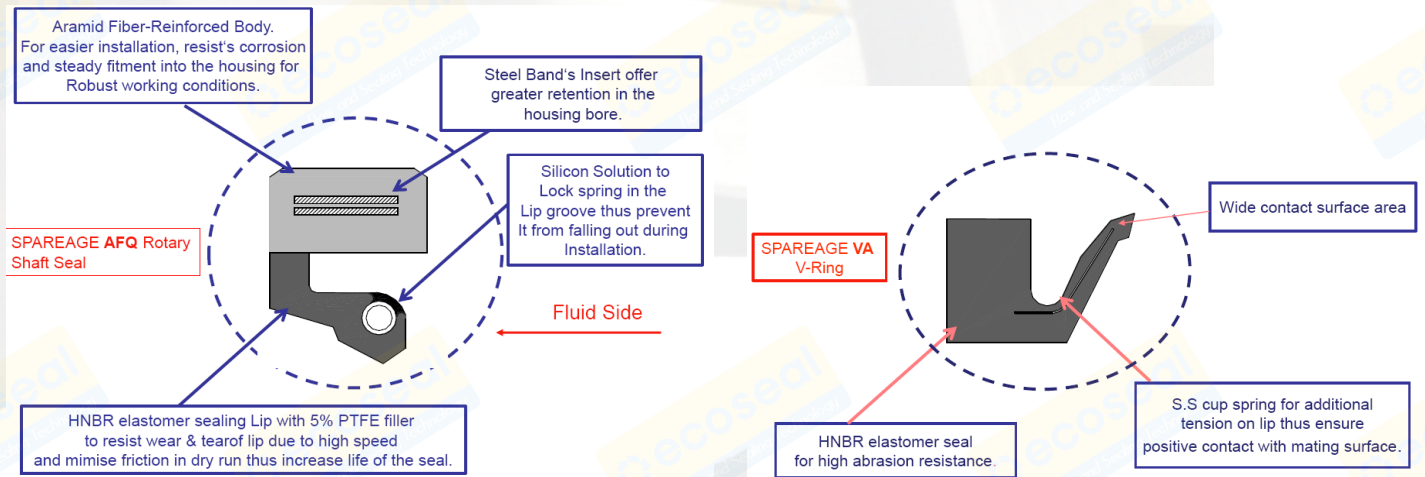
Shaft Ø 1200	8329998406
Shaft Ø 1290	8329998407
Shaft Ø 1750	8329998408
Shaft Ø 1816	8329998409

Spareage AFQ Rotary Seal and VRA V-Ring

Thyssenkrupp, Bochum, Germany



Technical Features



AFQ Rotary Shaft seal and VRA V-Ring developed by Spareage

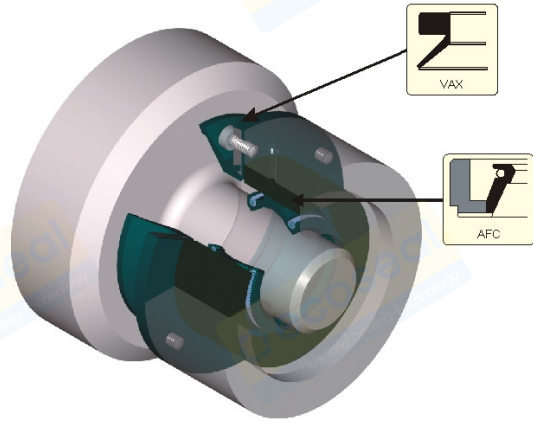
Shaft Ø 360	AFQ336D501
Shaft Ø 400	AFQ400D501
Shaft Ø 430	AFQ430D501

Shaft Ø 540	AFQ540D501
Shaft Ø 405	VRA4050702
Shaft Ø 540	VRA540D501

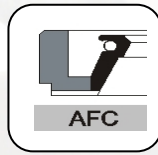
Application details of HSM Mill

Roughing Mill & Finishing Mill

Backup Roll Chock



Pres : 0.5 bar
Temp : -30°C to +100°C
Speed : 10 m/s
Matl : NBR/Fabric



Pres : 0.5 bar
Temp : -30°C to +100°C
Speed : 10 m/s
Matl : NBR/Fabric



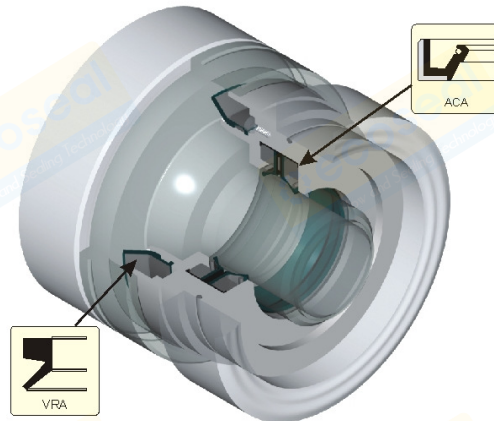
Temp : -30°C to +100°C
Speed : 10 m/s
Matl : NBR

Shaft Ø 520	AFA520D501
Shaft Ø 540	ACD5400801
Shaft Ø 570	AFC570D501
Shaft Ø 620	AFC6208401
Shaft Ø 800	AFC800D501

Shaft Ø 810	AFC810D501
Shaft Ø 950	AFC950D501
Shaft Ø 1100	AFB9998401
Shaft Ø 570	VZG570D501
Shaft Ø 1065	VRE10650702

Shaft Ø 1200	8329998406
Shaft Ø 1290	8329998407
Shaft Ø 1750	8329998408
Shaft Ø 1816	8329998409

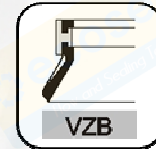
Work Roll Chock



Pres : 0.5 bar
Temp : -30°C to +100°C
Speed : 10 m/s
Matl : NBR/SS



Pres : 5 bar
Temp : -30°C to +100°C
Speed : 10 m/s
Matl : NBR/Fabric



Temp : -30°C to +100°C
Speed : 20 m/s
Matl : NBR/SS

Shaft Ø 360	AFQ336D501
Shaft Ø 387	AFL3878401
Shaft Ø 400	AFQ400D501
Shaft Ø 430	AFC430D501

Shaft Ø 455	AIG455D501
Shaft Ø 460	AFC460D501
Shaft Ø 500	AFC5008401
Shaft Ø 405	VRA4050702

Shaft Ø 410	VRL4101001
Shaft Ø 447	VZB4470801
Shaft Ø 450	VRL4501001
Shaft Ø 495	VAX4950701

Gear Box



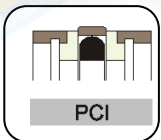
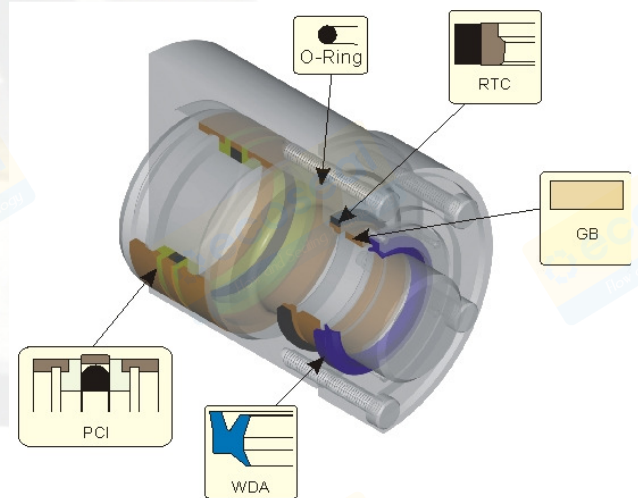
Pres : 0.5 bar
 Temp : -30°C to +100°C
 Speed : 10 m/s
 Matl : NBR/Fabric

Shaft Ø 130	AIA1300813
Shaft Ø 135	AIA1350818
Shaft Ø 140	AIA1400801
Shaft Ø 150	AIA1500801

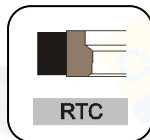
Shaft Ø 160	AIA1600811
Shaft Ø 170	AIA1700809
Shaft Ø 180	AIA1800826
Shaft Ø 190	AIA1900810

Shaft Ø 210	AIA2100812
Shaft Ø 220	AIA2200810
Shaft Ø 280	AIA2806405
Shaft Ø 450	AIA4500805

AGC Cylinder (Automatic Gauge Control)



Pres : 400 bar
 Speed : 1 m/s
 Type : Compact Seal



Pres : 400 bar
 Speed : 10 m/s
 Type : Composite



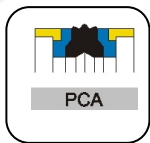
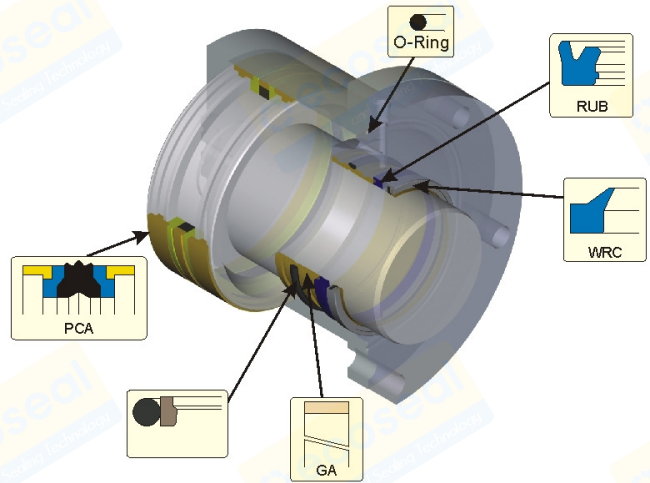
Speed : 2 m/s
 Type : Heavy Duty

Hydraulic Cylinder

- Bore Ø 800

BKIT90687

Hydraulic Cylinders



Pres : 400 bar
Speed : 0.5 m/s
Type : Compact Seal



Pres : 400 bar
Speed : 0.5 m/s
Type : U Seal



Speed : 2 m/s
Type : Medium Duty

RM Work Roll Pull Out Rig Cyl.

- Bore Ø 203

RM Backup Roll Rig Cylinder

- Bore Ø 355

Top & Bottom Roll Bending Cyl.

- Bore Ø 165

FM Backup Roll rig Cylinder

- Bore Ø 357

Coil Box Pinch Roll Cylinder

- Bore Ø 127

Coil Box Entry Deflector Roll Cyl.

- Bore Ø 127

Coil Box Bending Roll Cylinder

- Bore Ø 178

Coil Box Bending Balance Cyl.

- Bore Ø 101

Down Coiler Stripper Car Traverse

- Bore Ø 152

Down Coiler WBCC Lift Cylinder

- Bore Ø 355

Down Coiler Pinch-roll gap adjust

- Bore Ø 180

Un-coiler Side Guide Cylinder

- Bore Ø 127

BKIT92124

BKIT92333

BKIT92400

BKIT99187

BKIT90021

BKIT90122

BKIT90383

BKIT92035

BKIT90144

BKIT90147

BKIT95957

BKIT93442

FM Side Shift Cylinder

- Bore Ø 125

FM Pass Adjust Cylinder

- Bore Ø 100

Back up Roll Latch Cylinder

- Bore Ø 38

Work Roll Rig Cylinder

- Bore Ø 203

Pinch Roll Hold Down Cyl.

- Bore Ø 80

Pinch Roll Lift Cylinder

- Bore Ø 180

Coil Opener Peeler Lift Cyl.

- Bore Ø 127

Stripper Car Lift Cylinder

- Bore Ø 254

Vertical Edger Width Gauge

- Bore Ø 355

Crop Shear Sub Cylinder

- Bore Ø 90

Top Bending Cylinder

- Bore Ø 177

BKIT99510

BKIT99654

BKIT94881

BKIT90234

BKIT99652

BKIT99667

BKIT94193

BKIT90146

BKIT90148

BKIT93657

BKIT90015

Rotary Shaft Seals

- Clinker Grinder Gear Box
- Coal Mill Gear Box
- Coal mill motor
- Guide roller conveyor
- Crop Shear
- Looper BRG Cover
- Feed Roller & FSB
- Stripper Car
- Pinch Roll
- Looper Pillow Block
- Screw Down's load cell
- Coil Box
- Mandrel
- FM Spindle Wobbler
- Descale Hose Stub end



Pres : 0.5 bar
Temp : -30°C to +100°C
Speed : 10 m/s
Matl : NBR/MS



Pres : 5 bar
Temp : -30°C to +100°C
Speed : 5 m/s
Matl : NBR/MS



Pres : 0.5 bar
Temp : -30°C to +100°C
Speed : 10 m/s
Matl : NBR/MS

Shaft Ø 24	AHA0241001
Shaft Ø 25	AIA0250815
Shaft Ø 32	AIA0320802
Shaft Ø 39	AIA0390816
Shaft Ø 40	ACB0400803
Shaft Ø 40	AIA0406407
Shaft Ø 42	AIA0420835
Shaft Ø 44	ACC0440812
Shaft Ø 45	AIA0450864
Shaft Ø 48	AIA0486401
Shaft Ø 49	AIA0490806
Shaft Ø 50	AIA0506401
Shaft Ø 55	ACB0550816
Shaft Ø 56	AIA0560819
Shaft Ø 57	AIA0576402
Shaft Ø 60	AFA0608406

Shaft Ø 60	AIA0606412
Shaft Ø 65	AIA0650863
Shaft Ø 70	AFA0706401
Shaft Ø 70	AIA0706406
Shaft Ø 75	AIA0750806
Shaft Ø 78	AIA0780821
Shaft Ø 80	AIA0806406
Shaft Ø 85	ACB0850803
Shaft Ø 85	ACC0850802
Shaft Ø 85	AIA0856407
Shaft Ø 90	AIA0900827
Shaft Ø 95	ACA0950811
Shaft Ø 95	AFA0958601
Shaft Ø 95	AIA0956405
Shaft Ø 100	AIA1006405
Shaft Ø 105	ACB1050804

Shaft Ø 105	ACC1050803
Shaft Ø 105	AIA1050803
Shaft Ø 110	ACB1100802
Shaft Ø 110	AIA1100862
Shaft Ø 115	ACB1150807
Shaft Ø 120	AFA1208412
Shaft Ø 120	AIA1200832
Shaft Ø 130	ACB1300808
Shaft Ø 130	AFA1308405
Shaft Ø 140	ACA1400801
Shaft Ø 140	AFA1408403
Shaft Ø 150	ACA1500805
Shaft Ø 150	ACB1500801
Shaft Ø 160	ACB1600801
Shaft Ø 200	ACB2000803
Shaft Ø 280	ACC2800801

O-Ring and Cords

- WMW Grinding Machine
- Actuator Fitting
- Bending Cylinder
- Barrel
- Flanges
- Hydraulic Actuator for retainer

CD0050801
CD0056701
CD0060802
CD0066703
CD0070806
CD0076702
CD0080801
CD0100801
CD0130801

OR100019200-08
OR140001980-67
OR15001250-67
OR16009900-64
OR20000400-67
OR23001160-67
OR24000760-67
OR25001020-10
OR26003450-67

OR26201554-67
OR30002600-08
OR31001920-10
OR35004800-08
OR35302657-10
OR36301666-08
OR40002500-08
OR45028000-67
OR50004900-67

OR53308827-08
OR57005530-08
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OR85033900-10
OR86013370-08

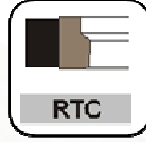
Hydraulic Seals

Piston and Rod Seals

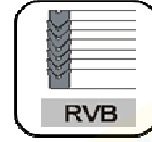
- AGC Cylinder
- Down Coiler Stripper Car Lift Cylinder
- Down Coiler WBBC Traverse Cylinder
- Vertical Edger Width Gauge Cylinder
- Down Coiler WBBC Lift Cylinder
- Peeler Cylinder



Pres : 400 bar
Speed : 0.5m/s
Type : V-Packing



Pres : 400 bar
Speed : 10 m/s
Type : Composite



Pres : 400 bar
Speed : 0.5m/s
Type : V-Packing

Bore Ø 100	PVA0808315
Bore Ø 110	PUB100E301
Bore Ø 127	PTA1147101
Bore Ø 275	PPB3506601
Bore Ø 320	PVA2808502
Bore Ø 340	PVA3008501

Rod Ø 45	RVB0458501
Rod Ø 70	RVB0708501
Rod Ø 80	RVB0808312
Rod Ø 130	RTA1300801
Rod Ø 140	RTA1400801
Rod Ø 130	RTC1307001

Rod Ø 140	RTC1400901
Rod Ø 965	RTD9650901
Rod Ø 140	RVA1408503
Rod Ø 160	RVB1608501
Rod Ø 400	RVB4008303
Rod Ø 1000	RVQ9998301

Symmetrical and Wiper Seals

- Furnace Traverse Cylinder
- Cradle Roll Cylinder
- Wrapper Roll Cylinder
- Crop Shear sub assly Cyl.
- Vertical Pull Back Cylinder
- Extractor Machine Lifting Cyl.
- Slab Stopper Lift Cyl.
- FSB Hood Lift Cyl.



Pres : 300/160 bar
Speed : 0.5m/s
Type : U-Seal



Pres : 315 bar
Speed : 0.5m/s



Speed : 0.5m/s
Type : Wiper

Rod Ø 28	SUA028E329
Rod Ø 36	SUA0361103
Rod Ø 57	SUA057E304
Rod Ø 75	SNB0758301
Rod Ø 100	SNB1008306
Rod Ø 125	SUD125E309
Rod Ø 200	SVB2008311

Bore Ø 55	WRC0451101
Bore Ø 55	WRD045L504
Bore Ø 66	WRC0561103
Bore Ø 70	WCE0561003
Bore Ø 78	WRB0701102
Bore Ø 80	WRC0701103
Bore Ø 80	WRD070L501

Bore Ø 102	WRC0901101
Bore Ø 112	WRC1001101
Bore Ø 122	WRC1101101
Bore Ø 140	WRC1251103
Bore Ø 155	WRC1406705
Bore Ø 163	WCE1407301
Bore Ø 175	WRC1606703

Customized Design Seals

- Couplings
- Backup Roll
- Gas Boosters
- Grinding machine drive

Z0251105	Stripping Ring
Z0275901	Rubber Pads
Z0501102	Scraper Ring
Z086K201	Rotary Seal

Z0906401	Special Cup Seal
Z1207401	Rotary Seal
Z1607402	Special Rotary Seal
Z9998406	Coolant Seal