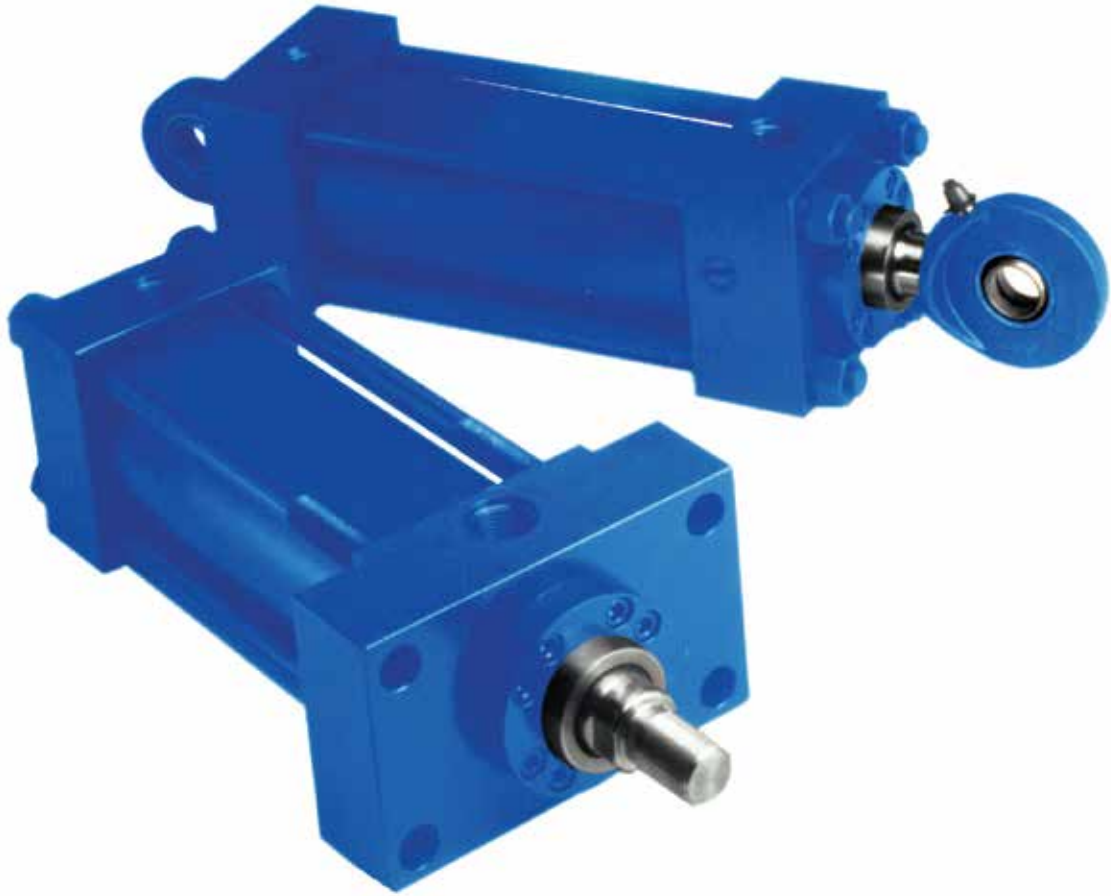


Seal kit details for standard series
3000 Psi hydraulic cylinders - NZ series
Vickers product line

FLUID POWER
SOLUTIONS



EATON

Powering Business Worldwide

Piston & rod seal types :

NZ Model Code 8th letter indicates seal type code NZ09KM1N1KW99APR

Types of seal codes :

N – Normal

L – Low friction

T – High temperature

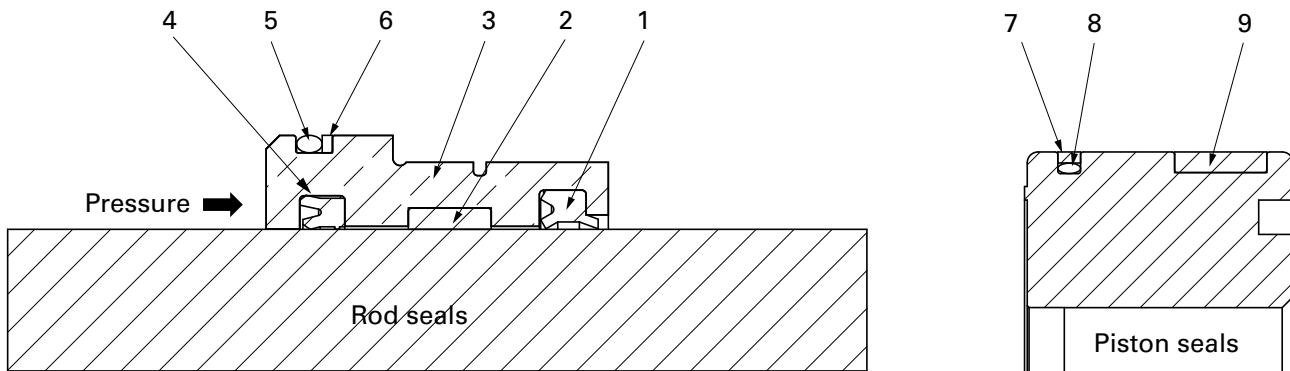
C – Normal with cast iron piston rings

R – High temperature with cast Iron rings

Seals technical details :

Seal code	Fluid	Temperature (Deg. F)	Max speed(ft/s)	Application
N	Mineral oil, petroleum base	-31 to 176	2.25	Typical industrial
	Automotive transmission fluid			
L	Mineral oil	-31 to 248	15	Low friction
	Water glycol(HFC)	+50 to 158	3	Fire retardant fluids
	Oil in water emulsions(HFA)			
	Water in oil emulsions(HFB)			
T/R	Mineral oil	-13 to 392	15	High temperature
	Phosphate esters, Petroleum oil brands	+32 to 392	15	
	Fyrquel 220, 550, 1000			
	Hought-safe1340			
	Pydraul 200, 230C, 280, 312C, 540C, A200			
C	Mineral oil, petroleum base	-31 to 176	2.25	Typical industrial
	Automotive transmission fluid			

N – Normal seal kits



Item	Description	Qty.	Material
1	Rod Wiper	1	Nitrile
2	Wear band	1	Composite fabric*
3	Rod cartridge	1	Cast Iron / Ductile
4	Rod seal	1	Polyurethane
5	Bearing back up	1	PTFE
6	Bearing O-ring	1	Nitrile
7	Piston seal	1	GFT
8	Piston wear band	1	Bronze filled PTFE

Note: *For rod sizes 0.63 & 1.00 wear band material is bronze filled PTFE

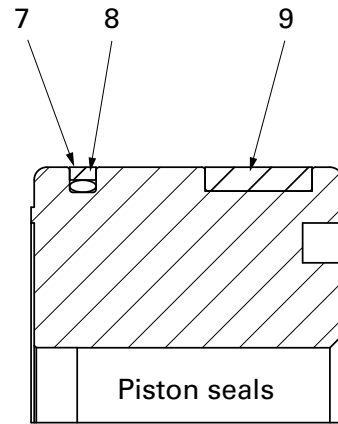
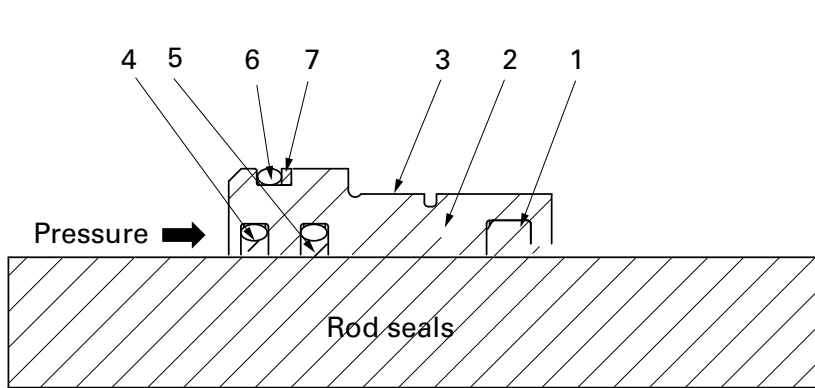
Rod dia	Rod seal kit Item 1,2,4,5,6	Rod cartridge assembly \$
0.63	6533N-NZC	NZ-681-S-05
1.00	6533N-NZE	NZ-681-S-08
1.38	6533N-NZH	NZ-681-S-11
1.75	6533N-NZL	NZ-681-S-14
2.00	6533N-NZM	NZ-681-S-16
2.50	6533N-NZP	NZ-681-S-20
3.00	6533N-NZU	NZ-681-S-24
3.50	6533N-NZV	NZ-681-S-28
4.00	6533N-NZW	NZ-681-S-32
4.50	6533N-NZY	NZ-681-S-36
5.00	6533N-NZZ	NZ-681-S-40
5.50	6533N-NZ1	NZ-681-S-44

Note: \$-Includes rod seal kit with cartridge

Bore dia	Piston seal Kit *(Item # 7, 8)
1.50	6633N-NZC
2.00	6633N-NZD
2.50	6633N-NZE
3.25	6633N-NZG
4.00	6633N-NZH
5.00	6633N-NZK
6.00	6633N-NZL
7.00	6633N-NZM
8.00	6633N-NZN

Note: *Piston seal kit contains body seal (not shown, Qty 2)

L – Low friction seal kits



Item	Description	Qty.	Material
1	Rod wiper	1	Nitrile
2	Wear band	1	Br filled PTFE
3	Rod cartridge	1	Cast iron / Ductile iron
4	Rod seal	2	Br filled PTFE +Nitrile O-ring
5	Bearing back up	1	PTFE
6	Bearing O-ring	1	Nitrile
7	Piston seal	1	GFT
8	Piston wear band	1	Bronze filled PTEE

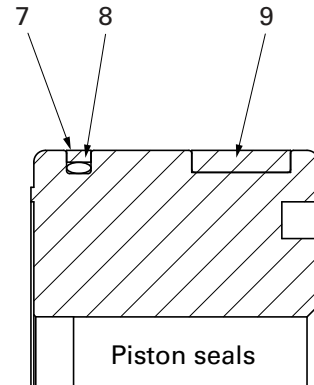
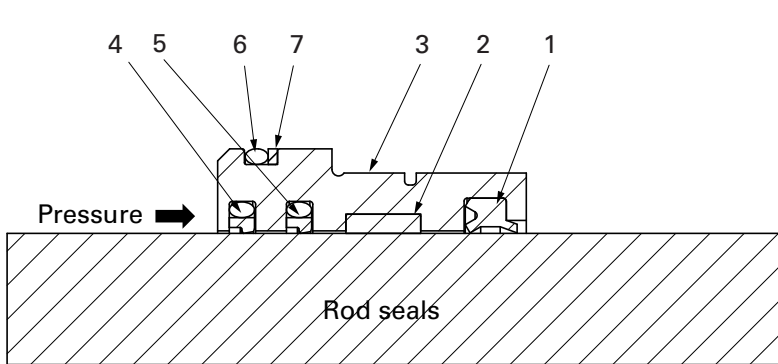
Rod dia	Rod seal kit Item 1,2,4,5,6	Rod cartridge assembly \$
0.63	6533L-NZC	NZ-681-L-05
1.00	6533L-NZE	NZ-681-L-08
1.38	6533L-NZH	NZ-681-L-11
1.75	6533L-NZL	NZ-681-L-14
2.00	6533L-NZM	NZ-681-L-16
2.50	6533L-NZP	NZ-681-L-20
3.00	6533L-NZU	NZ-681-L-24
3.50	6533L-NZV	NZ-681-L-28
4.00	6533L-NZW	NZ-681-L-32
4.50	6533L-NZY	NZ-681-L-36
5.00	6533L-NZZ	NZ-681-L-40
5.50	6533L-NZ1	NZ-681-L-44

Note: \$-Includes rod seal kit with cartridge

Bore dia	Piston seal Kit *(Item # 7, 8)
1.50	6633L-NZC
2.00	6633L-NZD
2.50	6633L-NZE
3.25	6633L-NZG
4.00	6633L-NZH
5.00	6633L-NZK
6.00	6633L-NZL
7.00	6633L-NZM
8.00	6633L-NZN

Note: *Piston seal kit contains body seal (not shown, Qty 2)

T – High temperature seal kits



Item	Description	Qty.	Material
1	Rod Wiper	1	FKM
2	Wear band	1	Br Filled PTFE
3	Rod cartridge	1	Cast iron / Ductile iron
4	Rod seal	2	Br filled PTFE + FKM O-ring
5	Bearing back up	1	PTFE
6	Bearing O-ring	1	Viton
7	Piston seal	1	GFT
8	Piston wear band	1	Bronze filled PTTE

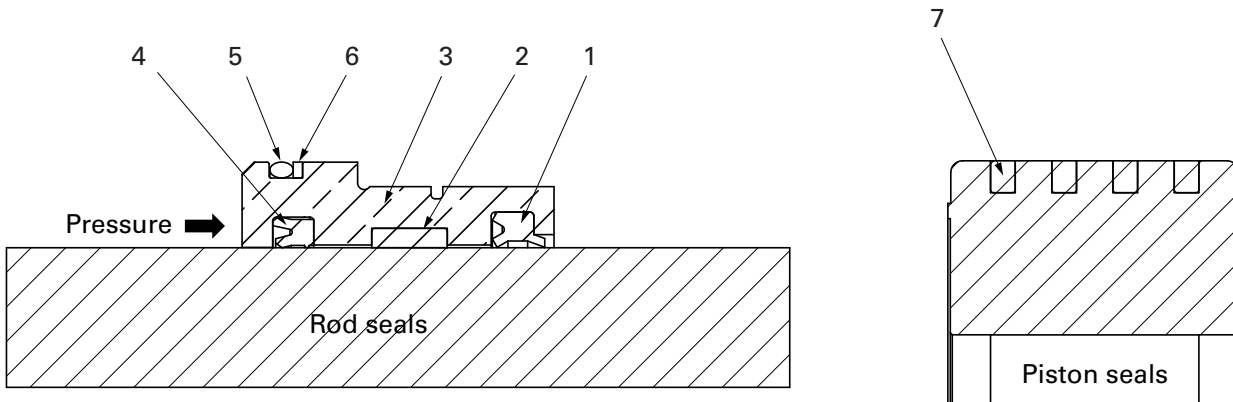
Rod dia	Rod seal kit Item 1,2,4,5,6	Rod cartridge assembly \$
0.63	6543T-NZC	NZ-681-T-05
1.00	6543T-NZE	NZ-681-T-08
1.38	6543T-NZH	NZ-681-T-11
1.75	6543T-NZL	NZ-681-T-14
2.00	6543T-NZM	NZ-681-T-16
2.50	6543T-NZP	NZ-681-T-20
3.00	6543T-NZU	NZ-681-T-24
3.50	6543T-NZV	NZ-681-T-28
4.00	6543T-NZW	NZ-681-T-32
4.50	6543T-NZY	NZ-681-T-36
5.00	6543T-NZZ	NZ-681-T-40
5.50	6543T-NZ1	NZ-681-T-44

Note: \$-Includes rod seal kit with cartridge

Bore dia	Piston seal Kit *(Item # 7, 8)
1.50	6643T-NZC
2.00	6643T-NZD
2.50	6643T-NZE
3.25	6643T-NZG
4.00	6643T-NZH
5.00	6643T-NZK
6.00	6643T-NZL
7.00	6643T-NZM
8.00	6643T-NZN

Note: *Piston seal kit contains body seal (not shown, Qty 2)

C – Normal with cast iron piston rings



Item	Description	Qty.	Material
1	Rod Wiper	1	Nitrile
2	Wear band	1	Composite Fabric*
3	Rod cartridge	1	Cast Iron / Ductile Iron
4	Rod seal	1	Polyurethane
5	Bearing back up	1	PTFE
6	Bearing O-ring	1	Nitrile
7	Piston seal	4	GFT

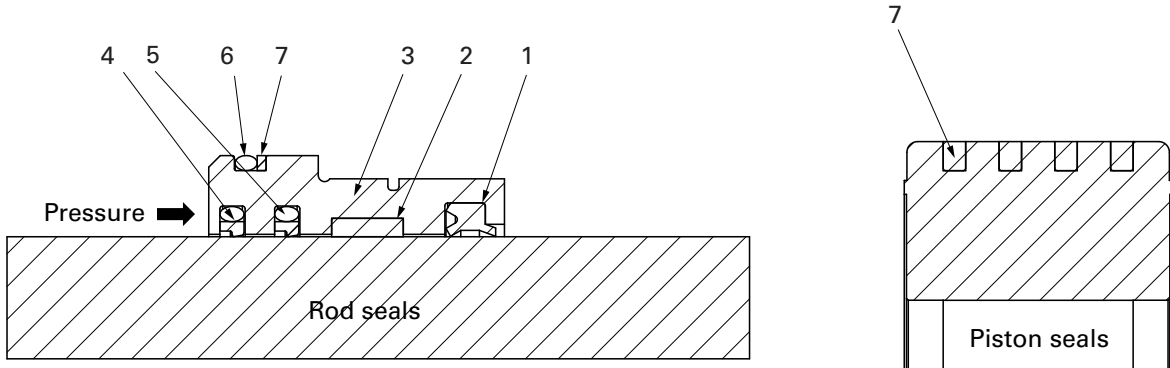
Rod dia	Rod seal kit Item 1,2,4,5,6	Rod cartridge assembly \$
0.63	6533N-NZC	NZ-681-S-05
1.00	6533N-NZE	NZ-681-S-08
1.38	6533N-NZH	NZ-681-S-11
1.75	6533N-NZL	NZ-681-S-14
2.00	6533N-NZM	NZ-681-S-16
2.50	6533N-NZP	NZ-681-S-20
3.00	6533N-NZU	NZ-681-S-24
3.50	6533N-NZV	NZ-681-S-28
4.00	6533N-NZW	NZ-681-S-32
4.50	6533N-NZY	NZ-681-S-36
5.00	6533N-NZZ	NZ-681-S-40
5.50	6533N-NZ1	NZ-681-S-44

Note: \$-Includes rod seal kit with cartridge

Rod dia	Piston seal Kit *(Item # 7, 8)
1.50	6633C-NZC
2.00	6633C-NZD
2.50	6633C-NZE
3.25	6633C-NZG
4.00	6633C-NZH
5.00	6633C-NZK
6.00	6633C-NZL
7.00	6633C-NZM
8.00	6633C-NZN

Note: *Piston seal kit contains body seal (not shown, Qty 2)

R – High temperature with cast iron rings



Item	Description	Qty.	Material
1	Rod Wiper	1	FKM
2	Wear band	1	Br filled PTFE
3	Rod cartridge	1	Cast iron / Ductile iron
4	Rod seal	2	Br filled PTFE + FKM O-ring
5	Bearing back up	1	PTFE
6	Bearing O-ring	1	Viton
7	Piston seal	1	GFT

Rod dia	Rod seal kit Item 1,2,4,5,6	Rod cartridge assembly \$
0.63	6543T-NZC	NZ-681-T-05
1.00	6543T-NZE	NZ-681-T-08
1.38	6543T-NZH	NZ-681-T-11
1.75	6543T-NZL	NZ-681-T-14
2.00	6543T-NZM	NZ-681-T-16
2.50	6543T-NZP	NZ-681-T-20
3.00	6543T-NZU	NZ-681-T-24
3.50	6543T-NZV	NZ-681-T-28
4.00	6543T-NZW	NZ-681-T-32
4.50	6543T-NZY	NZ-681-T-36
5.00	6543T-NZZ	NZ-681-T-40
5.50	6543T-NZ1	NZ-681-T-44

Note: \$-Includes rod seal kit with cartridge

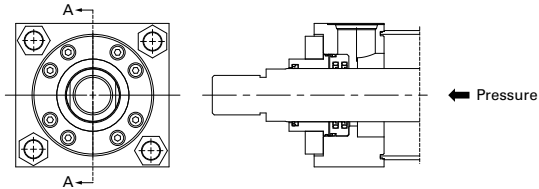
Bore dia	Piston seal Kit *(Item # 7, 8)
1.50	6633C-NZC
2.00	6633C-NZD
2.50	6633C-NZE
3.25	6633C-NZG
4.00	6633C-NZH
5.00	6633C-NZK
6.00	6633C-NZL
7.00	6633C-NZM
8.00	6633C-NZN

Note: *Piston seal kit contains body seal (not shown, Qty 2)

Rod cartridge retainers – either with circular retainer / full front plate

Cylinders with the following bore and rod combinations use circular retainers which permit removal of rod cartridge without disassembling the cylinder:

- 2 1/2" bore with 1" rod
- 3 1/4" bore with 1 3/8" rod
- 4" bore and larger with all rod diameters

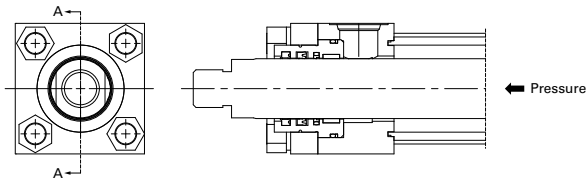


Torque on circular retainer socket head cap screws

Screw size	1/4-20	5/16-18	3/8-16	7/16-14	5/8-11	3/4-10
Torque(ft/lb)	13	28	48	70	220	340

Cylinders with the following bore and rod combinations use Full front plate as rod cartridge retainer.

- 1 1/2" bore with 5/8" and 1" rods
- 2 1/2" bore with 1 3/8" and 1 3/4" rods
- 2" bore with 1" and 1 3/8" rods
- 3 1/4" bore with 1 3/4" and 2" rods



Bore dia	Tie rod torque(Ft-lbs)	Tie rod torque(Ft-lbs) for 15 Mount
1.50	30	17
2.00	40	36
2.50	80	56
3.25	170	118
4.00	170	160
5.00	550	350
6.00	700	560
7.00	950	840
8.00	1250	1200

Note: Please refer for complete maintenance manual at

http://www.eaton.com/ecm/groups/public/@pub/@eaton/@hyd/documents/content/pct_1272924.pdf

Seal components :

Rod seal codes – N&C

Rod dia	Normal sealing	Wiper seal	Rod seal	Wear band	Bearing O-ring	Bearing backup
0.63	6533N-NZC	C-6905-CN	C-514-05	8124-0062	5145-123	C-359-123
1.00	6533N-NZE	C-6908-CN	C-514-08	8124-0100	5145-129	C-359-129
1.38	6533N-NZH	C-6911-CN	C-514-11	7945-0138	5145-137	C-359-137
1.75	6533N-NZL	C-6914-CN	C-514-14	7945-0175	5145-144	C-359-144
2.00	6533N-NZM	C-6916-CN	C-514-16	7945-0200	5145-148	C-359-148
2.50	6533N-NZP	C-6920-CN	C-514-20	7945-0250	5145-152	C-359-152
3.00	6533N-NZU	C-6924-CN	C-514-24	7945-0300	5145-241	C-214-24
3.50	6533N-NZV	C-6928-CN	C-514-28	7945-0350	5145-245	C-214-28
4.00	6533N-NZW	C-6932-CN	C-514-32	7945-0400	5145-249	C-214-32
4.50	6533N-NZY	C-6936-CN	C-514-36	7945-0450	5145-254	C-214-36
5.00	6533N-NZZ	C-6940-CN	C-514-40	7945-0500	5145-258	C-214-40
5.50	6533N-NZ1	C-6944-CN	C-514-44	7945-0550	5145-260	C-214-44

Rod seal codes – L

Rod dia	Low friction	Wiper seal	Rod seal	Rod seal energizer	Wear band	Bearing O-ring	Bearing backup
0.63	6533L-NZC	C-6905-CN	7951-0062	5145-116	8124-0062	5145-123	C-359-123
1.00	6533L-NZE	C-6908-CN	7951-0100	5145-122	8124-0100	5145-129	C-359-129
1.38	6533L-NZH	C-6911-CN	7951-0138	5145-128	8125-040	5145-137	C-359-137
1.75	6533L-NZL	C-6914-CN	7951-0175	5145-225	8124-0175	5145-144	C-359-144
2.00	6533L-NZM	C-6916-CN	7951-0200	5145-227	8124-0200	5145-148	C-359-148
2.50	6533L-NZP	C-6920-CN	7951-0250	5145-231	8124-0250	5145-152	C-359-152
3.00	6533L-NZU	C-6924-CN	7951-0300-A	5145-235	8124-0300	5145-241	C-214-24
3.50	6533L-NZV	C-6928-CN	7951-0350-A	5145-239	8124-0350	5145-245	C-214-28
4.00	6533L-NZW	C-6932-CN	7951-0400-A	5145-243	8124-0400	5145-249	C-214-32
4.50	6533L-NZY	C-6936-CN	7951-0450	5145-351	8124-0450	5145-254	C-214-36
5.00	6533L-NZZ	C-6940-CN	7951-0500	5145-355	8124-0500	5145-258	C-214-40
5.50	6533L-NZ1	C-6944-CN	7951-0550	5145-359	8124-0550	5145-260	C-214-44

Seal components :

Rod seal codes – T & R

Rod dia	High temp Seal	Wiper seal	Rod seal	Rod seal energizer	Wear band	Bearing O-ring	Bearing backup
0.63	6543T-NZC	C-6905-V	7951-0062	5147-116	8124-0062	5147-123	C-359-123
1.00	6543T-NZE	C-6908-V	7951-0100	5147-122	8124-0100	5147-129	C-359-129
1.38	6543T-NZH	C-6911-V	7951-0138	5147-128	8125-040	5147-137	C-359-137
1.75	6543T-NZL	C-6914-V	7951-0175	5147-225	8124-0175	5147-144	C-359-144
2.00	6543T-NZM	C-6916-V	7951-0200	5147-227	8124-0200	5147-148	C-359-148
2.50	6543T-NZP	C-6920-V	7951-0250	5147-231	8124-0250	5147-152	C-359-152
3.00	6543T-NZU	C-6924-V	7951-0300-A	5147-235	8124-0300	5147-241	C-214-24
3.50	6543T-NZV	C-6928-V	7951-0350-A	5147-239	8124-0350	5147-245	C-214-28
4.00	6543T-NZW	C-6932-V	7951-0400-A	5147-243	8124-0400	5147-249	C-214-32
4.50	6543T-NZY	C-6936-V	7951-0450	5147-351	8124-0450	5147-254	C-214-36
5.00	6543T-NZZ	C-6940-V	7951-0500	5147-355	8124-0500	5147-258	C-214-40
5.50	6543T-NZ1	C-6944-V	7951-0550	5147-359	8124-0550	5147-260	C-214-44

Piston sealing code – N

Bore dia	N	Piston seal	O-ring	Wear band	Body seal
1.50	6633N-NZC	CP-316-03	5145-123	C-315-02-08 (4.25)	C-255-03
2.00	6633N-NZD	CP-316-04	5145-131	C-315-02-08 (5.75)	C-255-04
2.50	6633N-NZE	CP-316-05	5145-139	C-315-02-08 (7.31)	C-255-05
3.25	6633N-NZG	CP-316-065	5145-233	C-315-02-08 (9.63)	C-255-065
4.00	6633N-NZH	CP-316-08	5145-239	C-315-02-08 (12)	C-255-08
5.00	6633N-NZK	CP-316-10	5145-247	C-315-02-12 (15.06)	C-255-10
6.00	6633N-NZL	CP-316-12	5145-254	C-315-02-12 (18.21)	C-255-12
7.00	6633N-NZM	CP-316-14	5145-260	C-315-02-12 (21.31)	C-255-14
8.00	6633N-NZN	CP-316-16	5145-264	C-315-02-12 (24.41)	C-255-16

Seal components :

Piston sealing code – L

Bore dia	L	Piston seal	O-ring	Wear band	Body seal
1.50	6633L-NZC	CP-316-03	5145-123	C-315-02-08 (4.25)	C-255-03
2.00	6633L-NZD	CP-316-04	5145-131	C-315-02-08 (5.75)	C-255-04
2.50	6633L-NZE	CP-316-05	5145-139	C-315-02-08 (7.31)	C-255-05
3.25	6633L-NZG	CP-316-065	5145-233	C-315-02-08 (9.63)	C-255-065
4.00	6633L-NZH	CP-316-08	5145-239	C-315-02-08 (12)	C-255-08
5.00	6633L-NZK	CP-316-10	5145-247	C-315-02-12 (15.06)	C-255-10
6.00	6633L-NZL	CP-316-12	5145-254	C-315-02-12 (18.21)	C-255-12
7.00	6633L-NZM	CP-316-14	5145-260	C-315-02-12 (21.31)	C-255-14
8.00	6633L-NZN	CP-316-16	5145-264	C-315-02-12 (24.41)	C-255-16

Piston sealing code – T

Bore dia	T	Piston seal	O-ring	Wear band	Body seal
1.50	6643T-NZC	CP-316-03	5147-123	C-315-02-08 (4.25)	C-255-03
2.00	6643T-NZD	CP-316-04	5147-131	C-315-02-08 (5.75)	C-255-04
2.50	6643T-NZE	CP-316-05	5147-139	C-315-02-08 (7.31)	C-255-05
3.25	6643T-NZG	CP-316-065	5147-233	C-315-02-08 (9.63)	C-255-065
4.00	6643T-NZH	CP-316-08	5147-239	C-315-02-08 (12)	C-255-08
5.00	6643T-NZK	CP-316-10	5147-247	C-315-02-12 (15.06)	C-255-10
6.00	6643T-NZL	CP-316-12	5147-254	C-315-02-12 (18.21)	C-255-12
7.00	6643T-NZM	CP-316-14	5147-260	C-315-02-12 (21.31)	C-255-14
8.00	6643T-NZN	CP-316-16	5147-264	C-315-02-12 (24.41)	C-255-16

Piston sealing code – C

Bore dia	C	Piston seal	Body seal
1.50	6633C-NZC	5170-1.500	C-255-03
2.00	6633C-NZD	5170-2.000	C-255-04
2.50	6633C-NZE	5170-2.500	C-255-05
3.25	6633C-NZG	5170-3.250	C-255-065
4.00	6633C-NZH	5170-4.000	C-255-08
5.00	6633C-NZK	5170-5.000	C-255-10
6.00	6633C-NZL	5170-6.000	C-255-12
7.00	6633C-NZM	5170-7.000	C-255-14
8.00	6633C-NZN	5170-8.000	C-255-16



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Cleveland, OH 44122
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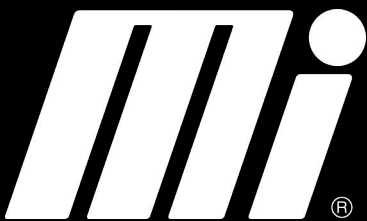
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