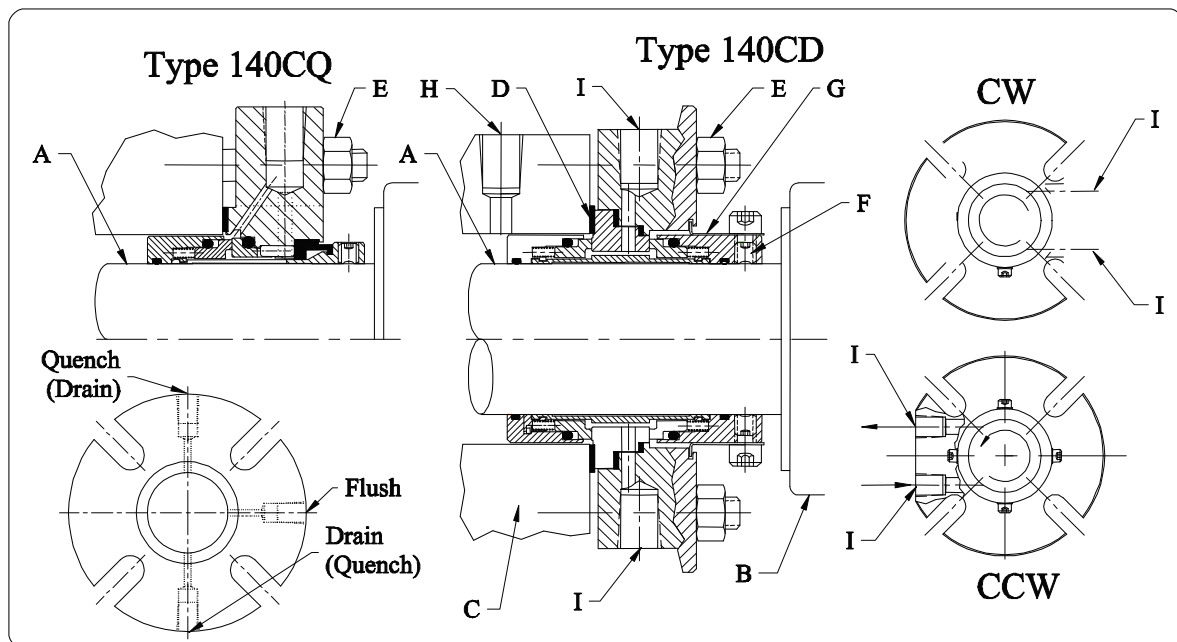


Cartridge Seals Type 140 Installation & Interpretation

- 1) Study Assembly drawing of seal to be installed – the drawing is always enclosed with seal. Any specific instructions showing on seal drawing overrule these general purpose instructions.
- 2) Verify seal chamber face (D) to be flat and smooth, shaft to be in proper condition.
- 3) Verify that pump, shaft and seal chamber meet accepted specifications and norms - Shaft: Axial movement to 0.10 mm (.004”), Radial movement to 0.08 mm (.003”), Rotational TIR to 0.08 mm (.003”); Seal Chamber: Squareness within 0.08 mm (.003”), Concentricity within 0.13 mm (.005”).
- 4) Verify that shaft or sleeve (A) leading edge is smooth, rounded or chamfered to prevent O-ring damage.
- 5) Verify Surface Finish shaft or sleeve to be within 0.8 micrometers (32 micro-inches) or 0.4 micrometers (16 micro-inches) for O-ring Teflon®.
- 6) Thoroughly clean shaft and lightly grease leading edge with silicon based grease or liquid soap.
- 7) Install and carefully slide seal assembly toward bearing chamber (B).
- 8) Install pump’s back-plate (C) (or seal chamber assembly) and secure in position.
- 9) Verify final positioning of shaft. No shaft movement is allowed after seal is secured!
- 10) Verify that threaded connections are positioned per direction of rotation and specific drawing instructions.
- 11) Move seal to contact (D) with seal chamber face.
- 12) Tighten nuts (E) equally around per torque specifications of table (See Sheet 2).
- 13) Tighten setscrews (F) firmly and equally around.
- 14) Remove setting tabs (G) (these tabs must be engaged in position before seal removal!). Note: Cartridge seals Type 140C & 140CQ are “Mount and Start” designs with no setting tabs to remove.
- 15) Verify proper installation of piping (H). Plug unused ports.
- 16) Connect ports (I) of seal and ports of Buffer Fluid Tank (See SPEC-BFT001 or specific drawing).
- 17) Fill Buffer Fluid System as required.



p/n IS140EN Sheet 1 of 3 , Revision A , Date 12/12/2005, Approval

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מומנט הידוק לארבעה אומי אוגן
Tightening Torque for 4 Gland Plate Nuts

Size	Size Screws											
	M6	M8	M10	M12	M14	M16	1/4" UNC	5/16" UNC	3/8" UNC	7/16" UNC	1/2" UNC	5/8" UNC
Newton-Meter												
1.125"	8.0	10.5	13.1	-	-	-	8.9	10.8	12.7	-	-	-
1.375"	-	12.1	15.0	-	-	-	-	12.4	14.7	-	-	-
1.625"	-	11.4	14.2	16.9	19.7	21.9	-	11.7	13.8	16.0	18.1	22.4
1.875"	-	12.8	15.8	18.9	21.9	24.5	-	13.0	15.4	17.9	20.2	25.0
2.000"	-	13.3	16.5	19.7	22.9	25.5	-	13.6	16.1	18.7	21.1	26.0
2.125"	-	15.8	19.6	23.3	27.1	30.3	-	16.1	19.1	22.1	25.0	30.9
28 mm	8.0	10.5	13.1	-	-	-	8.9	10.8	12.7	-	-	-
35 mm	-	12.1	15.0	-	-	-	-	12.4	14.7	-	-	-
45 mm	-	12.6	15.6	18.7	21.7	24.2	-	12.9	15.2	17.7	20.0	24.7
55 mm	-	16.0	19.8	23.6	27.5	30.6	-	16.3	19.3	22.4	25.3	31.3
Foot-Pound												
1.125"	5.9	7.7	9.7	-	-	-	6.6	8.0	9.4	-	-	-
1.375"	-	8.9	11.1	-	-	-	-	9.1	10.8	-	-	-
1.625"	-	8.4	10.5	12.4	14.5	16.2	-	8.6	10.2	11.8	13.3	16.5
1.875"	-	9.4	11.6	13.9	16.2	18.1	-	9.6	11.4	13.2	14.9	18.4
2.000"	-	9.8	12.1	14.5	26.9	18.8	-	10.0	11.9	13.8	15.6	19.2
2.125"	-	11.6	14.5	17.2	20.0	22.3	-	11.9	14.1	16.3	18.4	22.8
28 mm	5.9	7.7	9.7	-	-	-	6.6	8.0	9.4	-	-	-
35 mm	-	8.9	11.1	-	-	-	-	9.1	10.8	-	-	-
45 mm	-	9.3	11.5	13.8	16.0	17.8	-	9.5	11.2	13.1	14.8	18.2
55 mm	-	11.8	14.6	17.4	20.3	22.6	-	12.0	14.2	16.5	18.7	23.1

References:

Erik Oberg, Franklin D. Jones and Holbrook L. Horton (1984) "Machinery's Handbook" 22nd Edition, p.187, Industrial Press Inc., New York.

Formula:

$$T = Qx(p+6.2832\mu r)/(6.2832r-\mu p)$$

T = Torque; Q = Load; p = lead of thread; μ = coefficient of friction; r = pitch radius of screw.

Assumptions:

Design based on 320 bar axial closing Force on gasket;

$\mu = 0.2$ Coefficient of friction.

P/N IS140 Sheet 2 of 3

Revision A Date 17/11/2005 Approval

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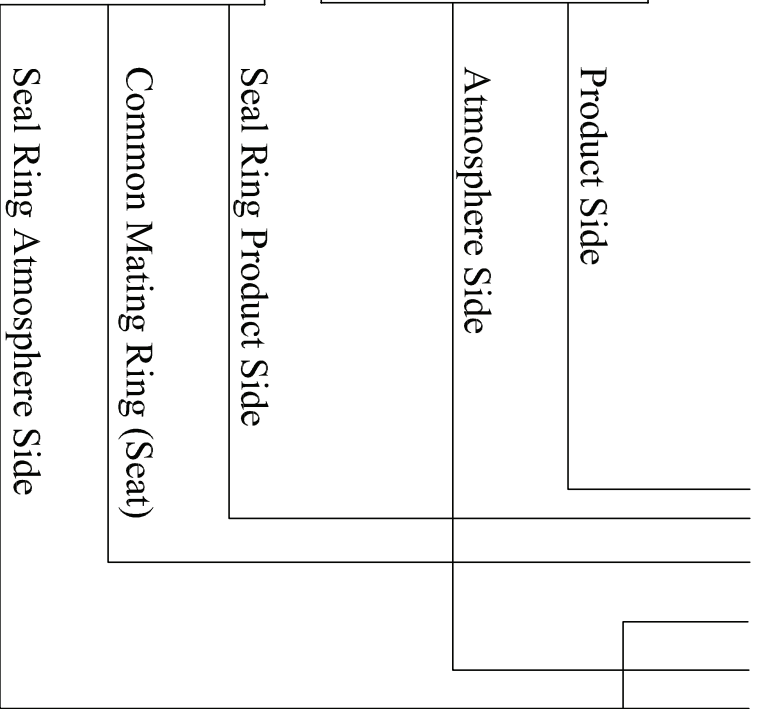
Single Cartridge Seal - 142CQ-1875 - FCN
 Dual (Double) Cartridge Seal - 142CD-M035-FN-N-HC
 Dual Inert Cartridge Seal - 142CV-2125 - FN-N-N-HC

Metalurgy
0=Generic
1=300 Series SST
2=316 SST
3=Hastelloy C
4=Alloy 20
5=Monel
6=Titanium
Others...

Size
1875=1-7/8"
M035 = 35 mm
Etc.

Elastomer
B - Butyl Rubber
F - FKM/PPM - FluoroCarbon (Viton®)
G - FEP Encapsulated FKM
H - Nitrile (Buna N)
I - FFKM - PerFluoroCarbon (Kalrez® or Isolast®)
J - FFKM - PerFluoroCarbon (Chemraz® or Equal)
K - FEPM (Atlas® or Equal)
L - Neoprene Rubber
P - Ethylene Propylene (EP, EPDM, EPR)
T - Solid PTFE (Teflon®)
W - FEPM (Atlas® 7182D or Equal)
Z - Static FEP Enc. FKM + Dynamic FFKM

Face Materials
A - Alumina Ceramic
C - Resin Impr. Carbon-Graphite
D - Dry Running Carbon-Graphite
F - Resin Impr. Carbon-Graphite - Food Grade
G - Carbon-Graphite Impr. Silicon Carbide
M - Ni Bonded Tungsten Carbide
N - Reaction Bonded Silicon Carbide
Q - Self Sintered Silicon Carbide
R - Electro-Graphite
S - Antimony Impr. Carbon-Graphite
Y - Ni-Resist



Material
A - Alumina Ceramic
M - Ni Bonded Tungsten Carbide
N - Reaction Bonded Silicon Carbide
Q - Self Sintered Silicon Carbide

Part Number System

P/N IS140 Sheet 3 of 3 Rev A

Date 20/07/2006 Approval _____

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