

POLYPAC® Veepac CH



Single-acting

Set of Chevron Ring

With Support and Pressure Energizing Ring

Without and with Anti-extrusion Ring

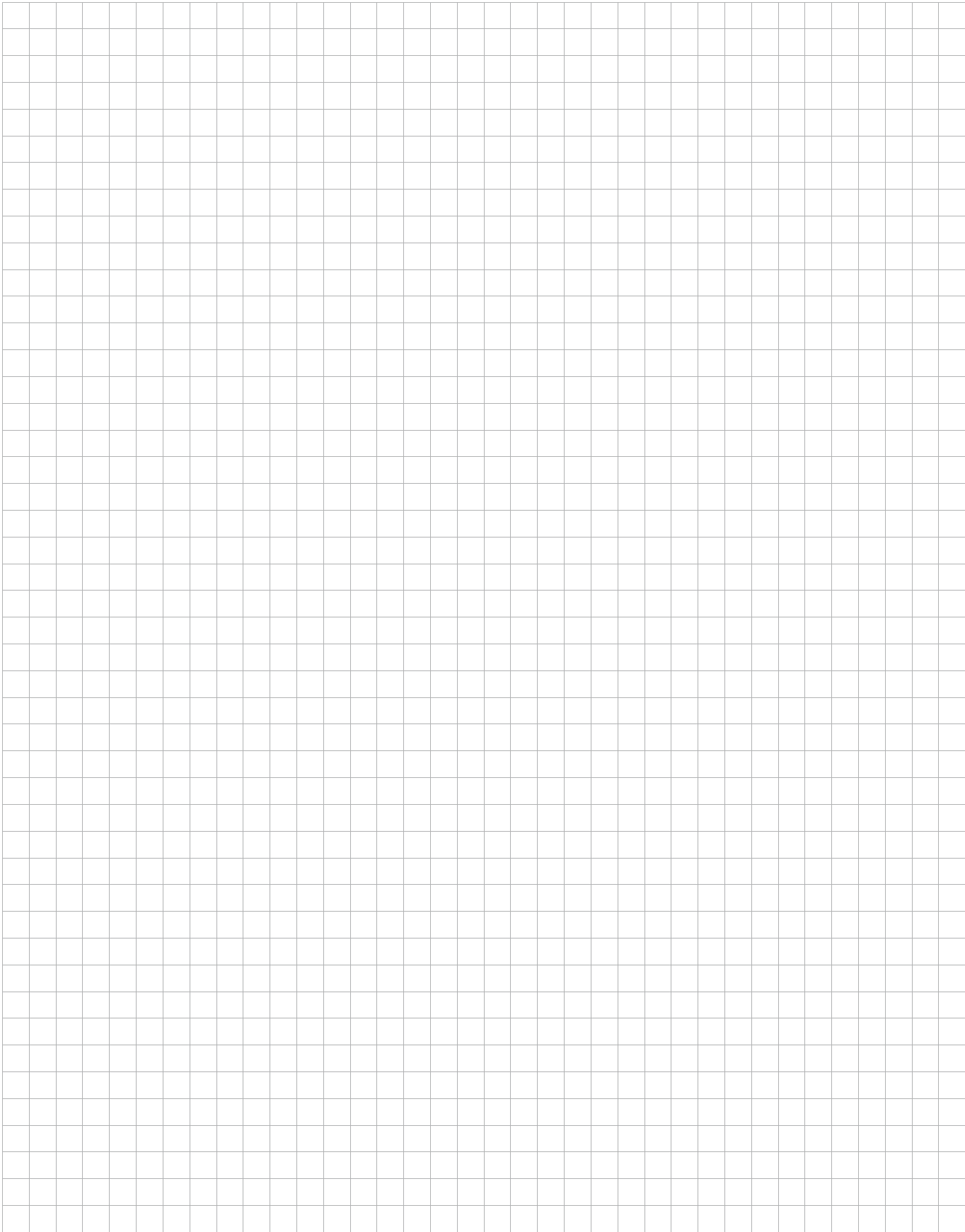
Material:

Fabric Reinforced Rubber -
POM or PTFE





Notes





■ Veepac CH



■ Description

Veepac seals are sets of fabric reinforced chevron rings. They are composed by a support ring, "V" shaped sealing rings and a pressure energizing ring.

The support ring or base ring guides and sustains the other "V" shaped rings for best performance. Special versions provide incorporated anti-extrusion rings, either on the inner or outer side, for rod or piston applications (see type CH/NEI or CH/NEO). In standard version the support ring is manufactured in cotton fabric reinforced rubber, for a good anti-extrusion resistance.

The intermediate "V" shaped rings (vee-rings) are the real sealing elements of Veepac seals. Their particular shape confers the capacity of increasing sealing effectiveness under high pressure. In standard version they are made in cotton fabric reinforced NBR and pure NBR.

The energizer ring ensures uniform loading of pressure on the other rings. This element is manufactured in acetal resin, or cotton fabric reinforced nitrile for diameters over 300 mm (standard material).

DESIGN

The veepac seals are available in different compositions. The standard version consists in a support ring, two fabric reinforced vee-rings, one rubber vee-ring and the energizing ring.

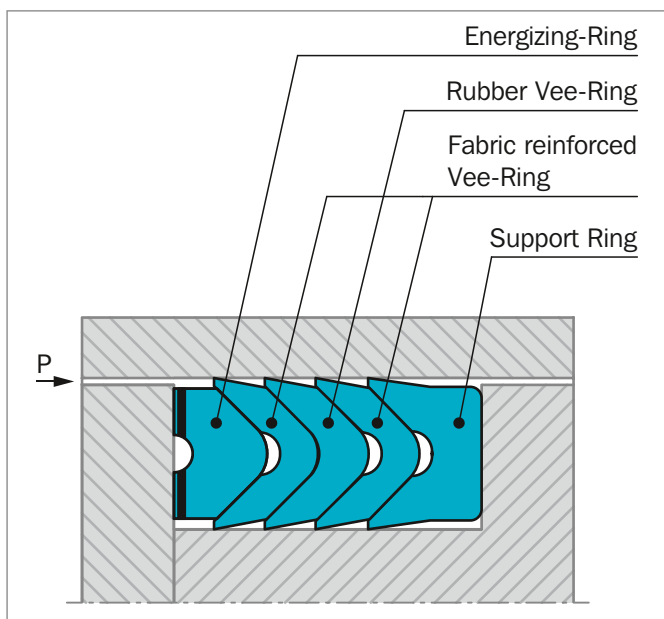


Figure 165: Veepac standard design

When the rubber vee-ring isn't available (indicated in the Table 157 with the symbol ^) the veepac are assembled with three fabric reinforced vee-ring as shown in figure below.

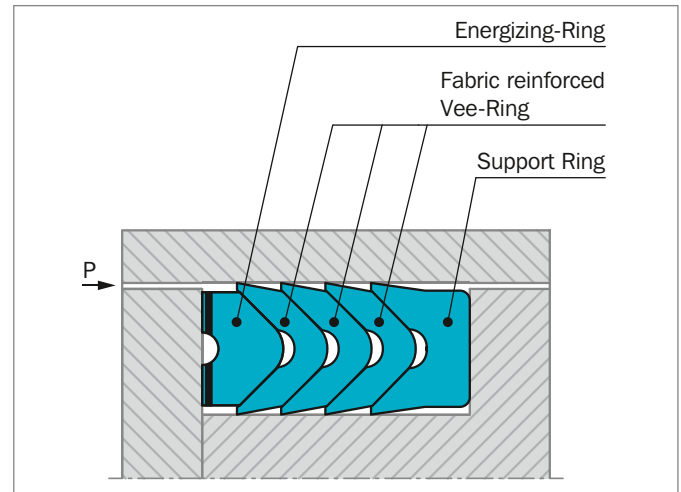


Figure 166: Veepac design with 3 fabric reinforced vee-ring

Where extrusion gaps are greater than those specified or for higher pressure conditions, special designs incorporating anti-extrusion rings can be made, to suit piston (suffix NEO) at the Polypac ref.

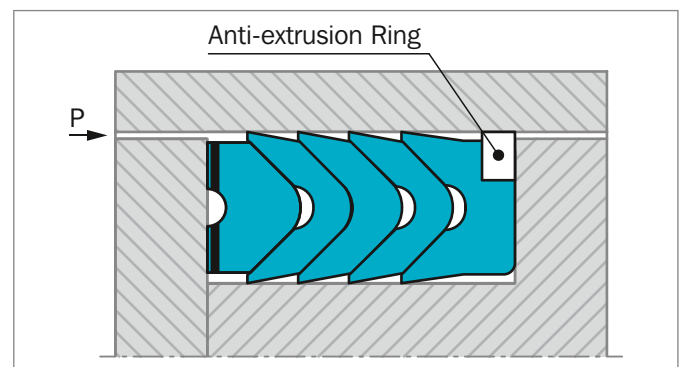


Figure 167: Veepac design with anti-extrusion ring



ADVANTAGES

- Exceptional wear resistance
- Pre-load adjustment capability
- Excellent behaviour in harsh conditions
- Rod-seal replacement without complete cylinder dismantling possible
- Long service life

APPLICATION EXAMPLES

VEEPAC seals are recommended for single acting or double acting (back to back installation) hydraulic cylinders in the following applications:

- Ship hydraulics
- Excavators
- Steel mills
- Presses

OPERATING CONDITIONS

Pressure:	Up to 40 MPa
Velocity:	Up to 0.5 m/s
Temperature:	-30 °C to +200 °C
Media:	Hydraulic fluids Mineral Oil based hydraulic fluids, Water/oil and Water/Glycol emulsions
Groove type:	Open

IMPORTANT NOTE

The above data are maximum values and cannot be used at the same time, e.g. the maximum operating speed depends on material type, pressure, temperature and gap value. Temperature range also depends on media.

GAP DIMENSIONS

To prevent extrusion the diameter not facing the pressure must be max. 0.3 mm smaller (than the piston seal) and 0.3 mm larger (than the rod seal). Using Veepac with Back-up Ring enables double values.

MATERIALS

Components of the VEEPAC seals are made in different combinations of materials, according to the specific application (see table below).

Table 155: Material Selection

Material Set Code	Temperature	Sealing Ring Material	Energizer Ring Material	
N000C	-30 to +130 °C	Cotton reinforced NBR	POM-GL-BK	up to 300 mm I.D.
			Cotton reinforced NBR	over 300 mm I.D.
V000A	-20 to +150 °C	Aramid Fiber reinforced FKM	POM-GL-BK	up to 300 mm I.D.
			Aramid Fiber reinforced FKM	over 300 mm I.D.
VOPOA	-20 to +200 °C	Aramid Fiber reinforced FKM	Filled PTFE	up to 300 mm I.D.
			Aramid Fiber reinforced FKM	over 300 mm I.D.

Highlighted material is standard.



■ Installation Recommendation, Type POLYPAC® CH/NEO (with Back-up Ring)

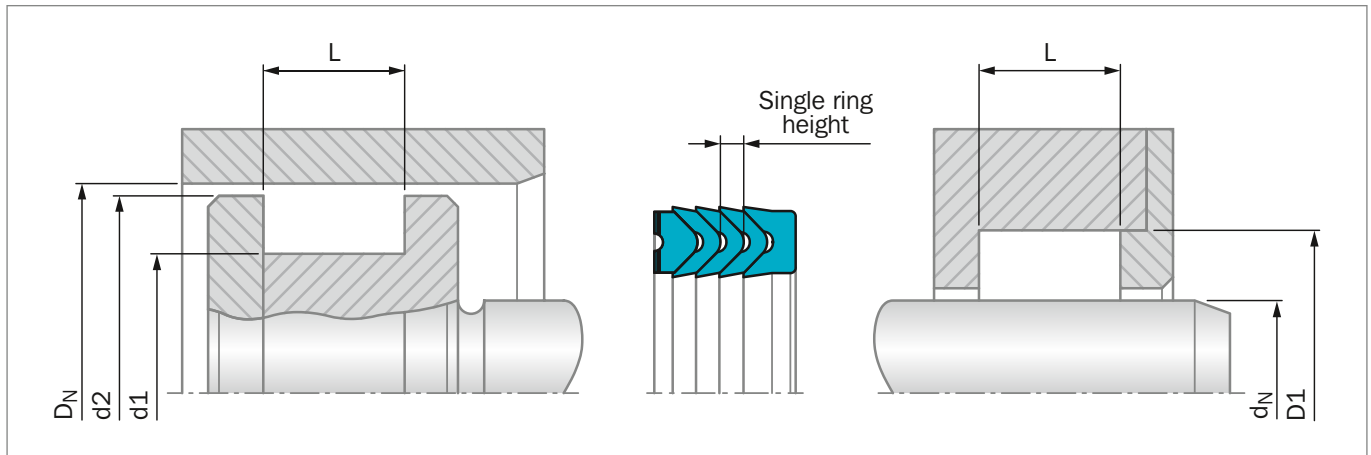


Figure 168: Installation Drawing

ORDERING EXAMPLE

For a **piston** application of standard Veepac sealing element composed by: Support ring **with anti-extrusion ring**, 3 elements vee-rings and Energizer ring:

Bore Diameter: $D_N = 150.0$ mm

Groove Diameter: $d_1 = 120.0$ mm

TSS Part No.: PCH0E1500

Material Set-Code: N000C

Polypac Part. No.: CH 590472/NEO

TSS Article No. **PCH0 E 1500 - N000C**

TSS Series No. ————

Type (Standard) ————

Bore Diameter x 10 ————

Quality Index ————

Material Set-Code ————

Table 156: Installation Dimensions / TSS Part No.

Bore Diameter	Groove Diameter	Groove Width	Diameter	Single Ring Height	Special Version	TSS Part No.	Polypac Ref. No.*
D_N	d_1	L	d_2				
H9/f8	h11	-0.25	+/-0.1				
80.00	60.00	32.15	79.00	5.66		PCH1E0800	CH 314236/NEO
88.90	69.85	35.50	87.90	4.83		PCH0E0889	CH 350275/1/NEO
90.00	70.00	30.00	89.00	5.08		PCH0E0900	CH 354275/NEO
95.25	76.20	28.97	94.20	5.16		PCH0E0952	CH 375300/NEO
95.25	82.55	21.72	94.20	3.71	# ^	PCH1E0952	CH 375325/NEO
101.60	85.72	26.75	100.60	4.14	^	PCH0E1016	CH 400337/NEO
107.95	88.90	31.00	106.90	4.90	^	PCH0E1079	CH 425350/NEO
114.30	88.90	35.32	113.30	6.55	^	PCH0E1143	CH 450350/NEO
114.30	95.25	25.40	113.30	5.00	^	PCH1E1143	CH 450375/NEO
114.30	98.42	26.59	113.30	4.34	^	PCH2E1143	CH 450387/NEO



Bore Diameter	Groove Diameter	Groove Width	Diameter	Single Ring Height	Special Version	TSS Part No.	Polypac Ref. No.*
D _N H9/f8	d1 h11	L -0.25	d2 +/-0.1				
125.00	100.00	36.90	124.00	6.60	# ^	PCH1E1250	CH 492393/NEO
125.00	105.00	27.00	124.00	5.00	^	PCH2E1250	CH 492413/1/NEO
127.00	101.60	32.15	126.00	5.82	#	PCH0E1270	CH 500400/NEO
127.00	107.95	30.00	126.00	4.52	^	PCH1E1270	CH 500425/NEO
139.70	114.30	33.50	138.70	5.56	^	PCH0E1397	CH 550450/1/NEO
140.00	115.00	37.12	139.00	6.00	^	PCH0E1400	CH 551452/NEO
140.00	120.00	30.00	139.00	5.36		PCH1E1400	CH 551472/NEO
150.00	120.00	44.00	149.00	7.50		PCH0E1500	CH 590472/NEO
152.40	127.00	38.63	151.40	6.48		PCH0E1524	CH 600500/NEO
160.00	130.00	41.50	159.00	5.50	#	PCH1E1600	CH 629511/NEO
160.00	130.00	43.50	159.00	5.50	#	PCH2E1600	CH 629511/1/NEO
187.32	171.45	24.20	186.30	4.09	# ^	PCH0E1873	CH 737675/NEO
210.00	180.00	32.97	209.00	5.99		PCH0E2100	CH 826708/B/NEO
222.25	190.50	50.00	221.20	7.57	^	PCH0E2222	CH 875750/NEO
280.00	250.00	32.97	279.00	5.99	^	PCH0E2800	CH 1102984/B/NEO

* As the Polypac Ref. No. does not refer to the material, please always state the full number if available for identification.
 "#" and "^" see Table 157.

Table 157: Explanation to "Special Version"

Not available with rubber V-ring		^	
Available upon request	#		

POLYPAC® Veepac CH/G1



Single-acting

Chevron Ring

With Support and Pressure
Energizing Ring

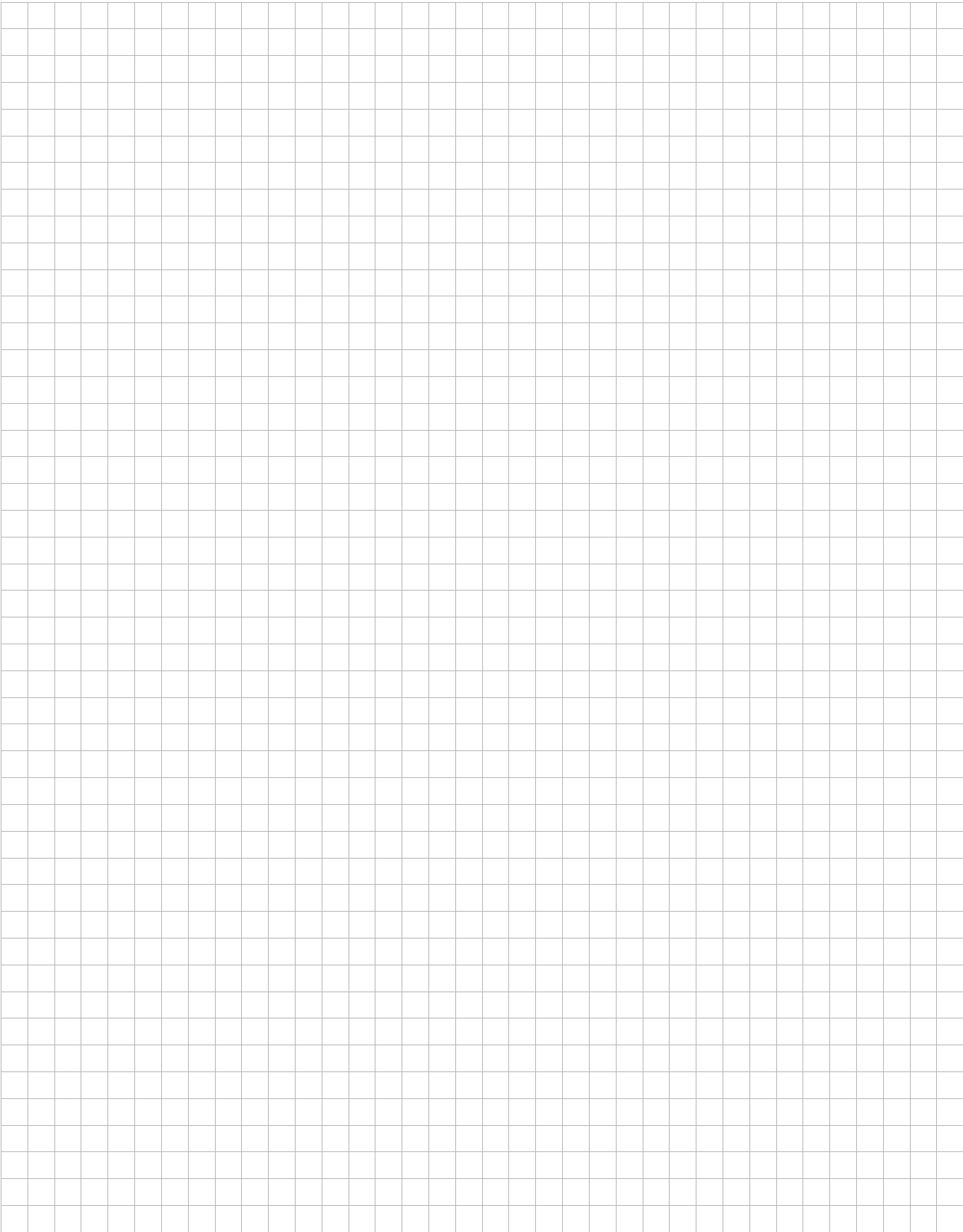
Material:

POM, PTFE, Fabric Reinforced Rubber





Notes





■ Veepac CH/G1



■ Description

Veepac G1 is a set of fabric reinforced rings comprising one support ring, one sealing ring and a pressure energizing ring. It is a single acting piston seal.

The support ring or base ring is manufactured out of nitrile elastomer with high Shore A hardness and reinforced with impregnated cotton fabric layers for an optimal extrusion resistance.

The intermediate ring - the sealing ring - is a fabric reinforced nitrile elastomer with good resilience characteristics enabling the radial deflection under pressure load. Consequently the optimum sealing force is applied to the bore to be sealed.

The energiser or spreader ring is made of POM or PTFE. Its function is to ensure a uniform pre-load of the seal.

In some specific applications the energiser ring is made out of Acetal resin or Phenolic resin. Please contact our local TSS company for further details.

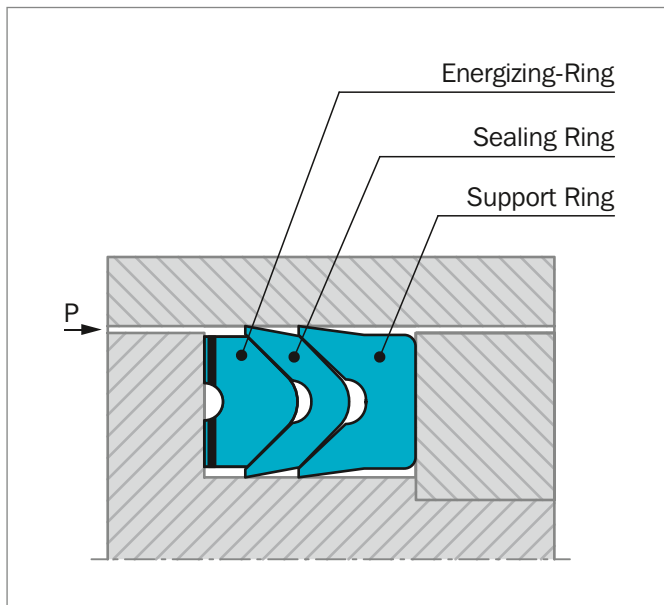


Figure 169: Veepac CH/G1

ADVANTAGES

- Exceptional wear resistance
- Pre-load adjustment capability
- Excellent behavior in harsh conditions

APPLICATION EXAMPLES

The Veepac seal is recommended for single acting or double acting (back to back installation) pistons in following applications:

- Mining equipment
- Excavator cylinders
- Steel mill cylinders
- Presses

OPERATING CONDITIONS

Pressure:	Up to 40 MPa
Velocity:	Up to 0.5 m/s
Temperature:	-30 °C to +200 °C, depending on material
Media:	Mineral oil, water glycol, water emulsions


IMPORTANT NOTE

The above data are maximum values and cannot be used at the same time, e.g. the maximum operating speed depends on material type, pressure, temperature and gap value. Temperature range also depends on media.

MATERIALS

The following material can be delivered:

Material Set Code	Temperature	Sealing Ring Material	Energizer/ Spreader Ring Material
N000C	-30 to +130 °C	Cotton reinforced NBR	POM
V000A	-20 to +150 °C	Aramid fiber reinforced FKM	POM
V0P0A	-20 to +200 °C	Aramid fiber reinforced FKM	PTFE

 Highlighted material is standard.



Installation Recommendation, Type CH/G1

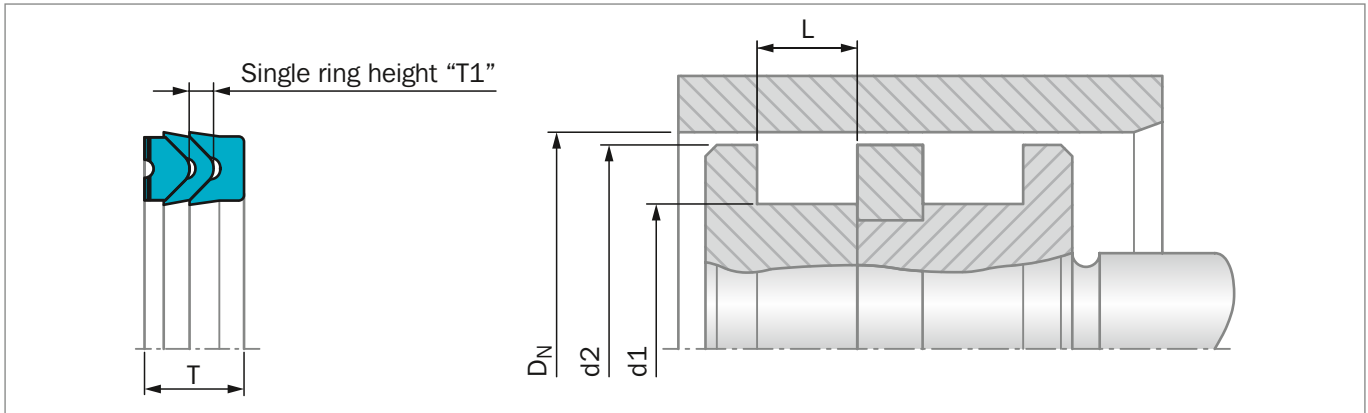


Figure 170: Installation Drawing

ORDERING EXAMPLE

For sealing element Veepac CH/G1 comprising 1 base ring and 1 Chevron element in cotton fabric reinforced NBR and the Spreader ring in POM.

Bore Diameter:	$D_N = 80.0 \text{ mm}$
TSS Part No.:	PCH0G0800 from Table 158
Material Set-Code:	N000C

TSS Article No.	PC	H0	G	0800	-	N000C
Article Sub Group	PC	H0	G	0800	-	N000C
TSS Series No.	PC H0 G			0800	-	N000C
Execution Mark	PC H0 G			0800	-	N000C
Bore diameter x 10	PC H0 G			0800	-	N000C
Quality Index (Standard)	PC H0 G			0800	-	N000C
Material code	PC H0 G			0800	-	N000C
Polypac Ref. No.:	CH 314236/G1					

Table 158: Installation Dimensions / TSS Part No.

Bore Diameter		Groove Diameter	Groove Width	Piston Diameter	Seal Width	Single Ring Height	TSS Part No.	Description
D_N	Tol.	d1 h11	L +0.3	d2 -0.3	T	T1		
40.0	H9/f8	25.0	11.5	39.0	11.0	3.2	PCH0G0400	CH 157098/G1
50.0	H9/f8	35.0	11.5	49.0	11.0	3.5	PCH0G0500	CH 196137/G1
55.0	H9/f8	40.0	11.5	54.0	11.0	2.9	PCH0G0550	CH 216157/G1
63.0	H9/f8	48.0	13.0	62.0	12.5	3.7	PCH0G0630	CH 248188/G1
65.0	H9/f8	50.0	11.5	64.0	11.0	3.9	PCH0G0650	CH 255196/G1
80.0	H9/f8	60.0	15.2	79.0	14.6	5.1	PCH0G0800	CH 314236/G1
100.0	H8/f8	80.0	21.2	99.0	20.6	5.0	PCH0G1000	CH 393314/G1
125.0	H8/f7	100.0	25.8	124.0	25.0	6.1	PCH0G1250	CH 492393/G1
140.0	H8/f7	115.0	25.8	139.0	25.0	8.0	PCH0G1400	CH 551452/G1
160.0	H8/f7	130.0	29.0	158.5	28.0	6.0	PCH0G1600	CH 629511/G1
180.0	H8/f7	150.0	31.5	178.5	30.5	9.9	PCH0G1800	CH 708590/G1
200.0	H8/f7	170.0	33.5	198.5	32.5	7.4	PCH0G2000	CH 787669/G1
240.0	H8/f7	210.0	33.5	238.5	32.5	10.2	PCH0G2400	CH 944826/G1
250.0	H8/f7	220.0	33.5	248.5	32.5	10.2	PCH0G2500	CH 984866/G1