

VP

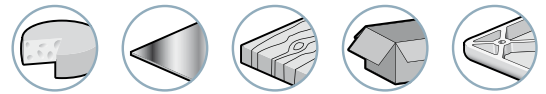
Ventouses plates Ø 8 à 75 mm



Les ventouses plates série VP sont spécialement recommandées pour la manipulation de produits plats, rigides et lisses.

- Grande force de traction.
- Grande résistance aux efforts latéraux permettant une manipulation verticale.
- Grande précision.

Domaines d'activité



Cas d'emploi



2
VP

Matières

- | | |
|------------------------------|----------------------------------|
| NBR Nitrile | SIT5 Silicone translucide |
| NR Caoutchouc naturel | STN Siton® |

Caractéristiques ventouses

	Ø (mm)	(cm ³)	(N) ⁽¹⁾	(N) ⁽¹⁾	R _{min} (mm)	NBR	SIT5	NR	STN
VP 8	7.5	0.04	1.1	0.5	10	VP8NBR	VP8SIT5	-	VP8STN
VP 10	10	0.05	1.6	0.8	13	VP10NBR	VP10SIT5	-	-
VP 15	15	0.18	3.7	1.8	13	VP15NBR	VP15SIT5	-	VP15STN
VP 20	20	0.44	6.1	3.0	20	VP20NBR	VP20SIT5	-	VP20STN
VP 25	25	0.7	9.4	4.7	25	VP25NBR	VP25SIT5	-	VP25STN
VP 26	26	1.5	11.2	5.6	35	VP26NBR	VP26SIT5	-	-
VP 30	30	2.9	15.9	7.9	40	VP30NBR	VP30SIT5	-	VP30STN
VP 35	35	2.7	23.1	11.6	50	VP35NBR	VP35SIT5	-	-
VP 40	40	4	26.7	13.4	50	VP40NBR	VP40SIT5	VP40NR	VP40STN
VP 50	52	7	38.3	19.1	75	VP50NBR	VP50SIT5	-	VP50STN
VP 60	60	7.3	57.8	28.9	100	VP60NBR	VP60SIT5	-	-
VP 75	75	16	101.1	50.6	130	VP75NBR	VP75SIT5	VP75NR	-

(1) Force pratique de la ventouse avec un vide de 65% et un coefficient de sécurité de 2 inclus pour manipulation horizontale et coefficient de 4 inclus pour manipulation verticale.

Choix des inserts

(Ø)	Groupe	M5-M	M6-M	M8-M	M10-M	G1/8"-F	G1/8"-M	10/32-M	G1/4"-F	G1/4"-M	G3/8"-M	G1/2"-M
8...25	1	■	■	-	-	■	■	□	-	-	-	-
26...60	2	□	□	□	□	■	■	-	■	■	-	-
75	3	-	-	-	□	-	■	-	■	■	□	□

■ Combinaisons «ventouse + insert» disponibles
Voir références page 2/4

□ Solutions de montage additionnelles
Voir page 2/7

Fixation : M = mâle F = femelle

Types de montages

Les ventouses COVAL disposent d'une grande modularité de montage :



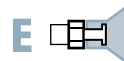
Version C : insert canule



Version S : insert serti usine



Version V : insert démontable
(vis creuse et adaptateur)



Version E : insert emmanché



Préciser référence ex. : VP40STNIM14C
Se reporter à la page 2/4

Accessoires

Afin d'optimiser l'utilisation de vos ventouses, Coval propose toute une gamme d'accessoires (inserts buses, systèmes ressort, rallonges, nourrices, etc.), voir chapitres 4 et 12.

VP

Ventouses plates Ø 8 à 75 mm

Références « ventouse + insert »



Groupe 1



FILETAGE	M5-M	M6-M	G1/8"-M	G1/8"-F
VP8NBR	VP8NBRIMM5C	VP8NBRIMM6C	VP8NBRIM18C	VP8NBRIF18C
VP8SIT5	VP8SIT5IMM5C	VP8SIT5IMM6C	VP8SIT5IM18C	VP8SIT5IF18C
VP8STN	VP8STNIMM5C	VP8STNIMM6C	VP8STNIM18C	VP8STNIF18C
VP10NBR	VP10NBRIMM5C	VP10NBRIMM6C	VP10NBRIM18C	VP10NBRIF18C
VP10SIT5	VP10SIT5IMM5C	VP10SIT5IMM6C	VP10SIT5IM18C	VP10SIT5IF18C
VP15NBR	VP15NBRIMM5C	VP15NBRIMM6C	VP15NBRIM18C	VP15NBRIF18C
VP15SIT5	VP15SIT5IMM5C	VP15SIT5IMM6C	VP15SIT5IM18C	VP15SIT5IF18C
VP15STN	VP15STNIMM5C	VP15STNIMM6C	VP15STNIM18C	VP15STNIF18C
VP20NBR	VP20NBRIMM5C	VP20NBRIMM6C	VP20NBRIM18C	VP20NBRIF18C
VP20SIT5	VP20SIT5IMM5C	VP20SIT5IMM6C	VP20SIT5IM18C	VP20SIT5IF18C
VP20STN	VP20STNIMM5C	VP20STNIMM6C	VP20STNIM18C	VP20STNIF18C
VP25NBR	VP25NBRIMM5C	VP25NBRIMM6C	VP25NBRIM18C	VP25NBRIF18C
VP25SIT5	VP25SIT5IMM5C	VP25SIT5IMM6C	VP25SIT5IM18C	VP25SIT5IF18C
VP25STN	VP25STNIMM5C	VP25STNIMM6C	VP25STNIM18C	VP25STNIF18C
VP25SIT5	VP25SIT5IMM5C	VP25SIT5IMM6C	VP25SIT5IM18C	VP25SIT5IF18C
VP25STN	VP25STNIMM5C	VP25STNIMM6C	VP25STNIM18C	VP25STNIF18C

Groupe 2



FILETAGE	G1/4"-M	G1/4"-F	G1/4"-M	G1/4"-F	G1/8"-M	G1/8"-F	G1/4"-M	G1/4"-F
VP26NBR	VP26NBRIM14C	VP26NBRIF14C	VP26NBRIM14	VP26NBRIF14	VP26NBRIM18V	VP26NBRIF18V	VP26NBRIM14V	VP26NBRIF14V
VP26SIT5	VP26SIT5IM14C	VP26SIT5IF14C	VP26SIT5IM14	VP26SIT5IF14	VP26SIT5IM18V	VP26SIT5IF18V	VP26SIT5IM14V	VP26SIT5IF14V
VP30NBR	VP30NBRIM14C	VP30NBRIF14C	VP30NBRIM14	VP30NBRIF14	VP30NBRIM18V	VP30NBRIF18V	VP30NBRIM14V	VP30NBRIF14V
VP30SIT5	VP30SIT5IM14C	VP30SIT5IF14C	VP30SIT5IM14	VP30SIT5IF14	VP30SIT5IM18V	VP30SIT5IF18V	VP30SIT5IM14V	VP30SIT5IF14V
VP30STN	VP30STNIM14C	VP30STNIF14C	VP30STNIM14	VP30STNIF14	VP30STNIM18V	VP30STNIF18V	VP30STNIM14V	VP30STNIF14V
VP35NBR	VP35NBRIM14C	VP35NBRIF14C	VP35NBRIM14	VP35NBRIF14	VP35NBRIM18V	VP35NBRIF18V	VP35NBRIM14V	VP35NBRIF14V
VP35SIT5	VP35SIT5IM14C	VP35SIT5IF14C	VP35SIT5IM14	VP35SIT5IF14	VP35SIT5IM18V	VP35SIT5IF18V	VP35SIT5IM14V	VP35SIT5IF14V
VP40NBR	VP40NBRIM14C	VP40NBRIF14C	VP40NBRIM14	VP40NBRIF14	VP40NBRIM18V	VP40NBRIF18V	VP40NBRIM14V	VP40NBRIF14V
VP40NR	VP40NRIM14C	VP40NRIF14C	VP40NRIM14	VP40NRIF14	VP40NRIM18V	VP40NRIF18V	VP40NRIM14V	VP40NRIF14V
VP40SIT5	VP40SIT5IM14C	VP40SIT5IF14C	VP40SIT5IM14	VP40SIT5IF14	VP40SIT5IM18V	VP40SIT5IF18V	VP40SIT5IM14V	VP40SIT5IF14V
VP40STN	VP40STNIM14C	VP40STNIF14C	VP40STNIM14	VP40STNIF14	VP40STNIM18V	VP40STNIF18V	VP40STNIM14V	VP40STNIF14V
VP50NBR	VP50NBRIM14C	VP50NBRIF14C	VP50NBRIM14	VP50NBRIF14	VP50NBRIM18V	VP50NBRIF18V	VP50NBRIM14V	VP50NBRIF14V
VP50SIT5	VP50SIT5IM14C	VP50SIT5IF14C	VP50SIT5IM14	VP50SIT5IF14	VP50SIT5IM18V	VP50SIT5IF18V	VP50SIT5IM14V	VP50SIT5IF14V
VP50STN	VP50STNIM14C	VP50STNIF14C	VP50STNIM14	VP50STNIF14	VP50STNIM18V	VP50STNIF18V	VP50STNIM14V	VP50STNIF14V
VP60NBR	VP60NBRIM14C	VP60NBRIF14C	VP60NBRIM14	VP60NBRIF14	VP60NBRIM18V	VP60NBRIF18V	VP60NBRIM14V	VP60NBRIF14V
VP60SIT5	VP60SIT5IM14C	VP60SIT5IF14C	VP60SIT5IM14	VP60SIT5IF14	VP60SIT5IM18V	VP60SIT5IF18V	VP60SIT5IM14V	VP60SIT5IF14V
VP60SIT5	VP60SIT5IM14C	VP60SIT5IF14C	VP60SIT5IM14	VP60SIT5IF14	VP60SIT5IM18V	VP60SIT5IF18V	VP60SIT5IM14V	VP60SIT5IF14V

Groupe 3



FILETAGE	G1/8"-M	G1/4"-M	G1/4"-F	G1/4"-M	G1/4"-F
VP75NBR	VP75NBRIM18V	VP75NBRIM14V	VP75NBRIF14V	VP75NBRIM14	VP75NBRIF14
VP75NR	VP75NRIM18V	VP75NRIM14V	VP75NRIF14V	VP75NRIM14	VP75NRIF14
VP75SIT5	VP75SIT5IM18V	VP75SIT5IM14V	VP75SIT5IF14V	VP75SIT5IM14	VP75SIT5IF14

Des solutions de montage additionnelles sont disponibles (voir page 2/7).
Les combinaisons « ventouse+insert » versions C et V sont livrées non assemblées.

VP

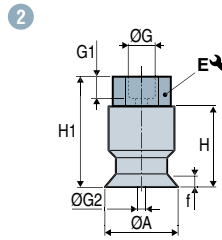
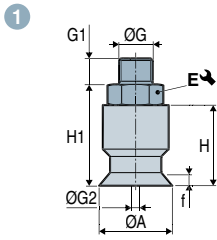
Ventouses plates Ø 8 à 75 mm

Encombrements « ventouse + insert »

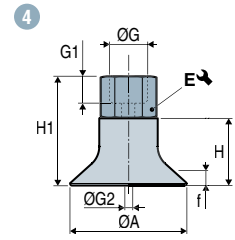
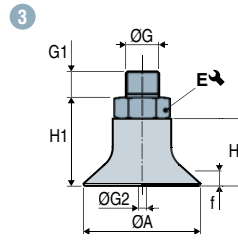


VP 2

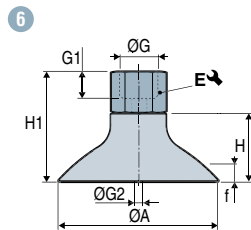
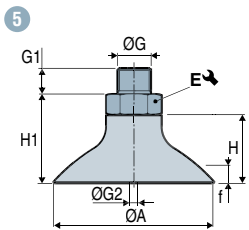
VP 8 - 10 Groupe 1



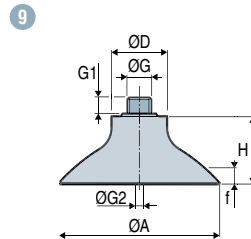
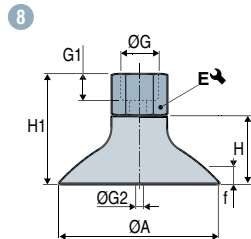
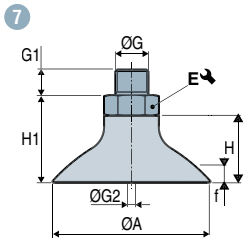
VP 15 - 25 Groupe 1



VP 26 - 60 Groupe 2



VP 75 Groupe 3



Group 1	Schéma	ØA	ØD	f ⁽¹⁾	H	H1	ØG	G1	ØG2 ⁽²⁾	E ↘	⊞ (g)	
Ø 8 - 25 mm	VP8---IMM5C	1	7.5	-	1.3	10	15	M5-M	4.5	2.5	7	3.5
	VP8---IMM6C	1	7.5	-	1.3	10	15	M6-M	5	3.5	7	3.1
	VP8---IM18C	1	7.5	-	1.3	10	16	G1/8"-M	7.5	3.5	14	4.5
	VP8---IF18C	2	7.5	-	1.3	10	22	G1/8"-F	8	3.5	14	4.4
	VP10---IMM5C	1	10	-	1.5	10.5	15.5	M5-M	4.5	2.5	7	3.6
	VP10---IMM6C	1	10	-	1.5	10.5	15.5	M6-M	5	3.5	7	3.2
	VP10---IM18C	1	10	-	1.5	10.5	16.5	G1/8"-M	7.5	3.5	14	4.6
	VP10---IF18C	2	10	-	1.5	10.5	22.5	G1/8"-F	8	3.5	14	4.5
	VP15---IMM5C	3	15	-	2.25	11	16	M5-M	4.5	2.5	7	3.8
	VP15---IMM6C	3	15	-	2.25	11	16	M6-M	5	3.5	7	3.4
	VP15---IM18C	3	15	-	2.25	11	17	G1/8"-M	7.5	3.5	14	4.8
	VP15---IF18C	4	15	-	2.25	11	23	G1/8"-F	8	3.5	14	4.7
	VP20---IMM5C	3	20	-	3	11.5	17.5	M5-M	4.5	2.5	7	4.2
	VP20---IMM6C	3	20	-	3	11.5	23.5	M6-M	5	3.5	7	3.8
	VP20---IM18C	3	20	-	3	11.5	16.5	G1/8"-M	7.5	3.5	14	5.2
	VP20---IF18C	4	20	-	3	11.5	16.5	G1/8"-F	8	3.5	14	5.1
	VP25---IMM5C	3	25	-	3	12	17	M5-M	4.5	2.5	7	4.6
	VP25---IMM6C	3	25	-	3	12	17	M6-M	5	3.5	7	4.2
	VP25---IM18C	3	25	-	3	12	18	G1/8"-M	7.5	3.5	14	5.6
	VP25---IF18C	4	25	-	3	12	24	G1/8"-F	8	3.5	14	5.5

Note : toutes les cotes sont indiquées en mm (1) f = Flèche de la ventouse. (2) Ø G2 = Ø de passage intérieur de l'insert.

VP

Ventouses plates Ø 8 à 75 mm

Encombrements « ventouse + insert »



Groupe 2	Schéma	ØA	ØD	f ⁽¹⁾	H	H1	ØG	G1	ØG2 ⁽²⁾	E ↘	(g)	
Ø 26 - 60 mm	VP26---IM18V	5	26	-	3	19.5	24	G1/8"-M	6	3.5	13	17.9
	VP26---IF18V	6	26	-	3	19.5	32.5	G1/8"-F	7.5	3.5	13	21.2
	VP26---IM14	5	26	-	3	19.5	23.5	G1/4"-M	11	4.4	17	11.6
	VP26---IM14C	5	26	-	3	19.5	27.5	G1/4"-M	10	7	17	12.5
	VP26---IM14V	5	26	-	3	19.5	24.5	G1/4"-M	8	3.5	17	27.2
	VP26---IF14	6	26	-	3	19.5	34.5	G1/4"-F	10	4.4	17	12.2
	VP26---IF14C	6	26	-	3	19.5	34.5	G1/4"-F	12	6.9	17	11.8
	VP26---IF14V	6	26	-	3	19.5	35.5	G1/4"-F	11	3.5	17	31.8
	VP30---IM18V	5	30	-	2.5	19	23.5	G1/8"-M	6	3.5	13	17.3
	VP30---IF18V	6	30	-	2.5	19	32	G1/8"-F	7.5	3.5	13	21.6
	VP30---IM14	5	30	-	2.5	19	23	G1/4"-M	11	4.4	17	12.0
	VP30---IM14C	5	30	-	2.5	19	27	G1/4"-M	10	7	17	12.9
	VP30---IM14V	5	30	-	2.5	19	24	G1/4"-M	8	3.5	17	27.6
	VP30---IF14	6	30	-	2.5	19	34	G1/4"-F	10	4.4	17	12.6
	VP30---IF14C	6	30	-	2.5	19	34	G1/4"-F	12	6.9	17	12.2
	VP30---IF14V	6	30	-	2.5	19	35	G1/4"-F	11	3.5	17	32.2
	VP35---IM18V	5	35	-	3	20	24.5	G1/8"-M	6	3.5	13	20.1
	VP35---IF18V	6	35	-	3	20	33	G1/8"-F	7.5	3.5	13	23.4
	VP35---IM14	5	35	-	3	20	24	G1/4"-M	11	4.4	17	13.8
	VP35---IM14C	5	35	-	3	20	28	G1/4"-M	10	7	17	14.7
	VP35---IM14V	5	35	-	3	20	25	G1/4"-M	8	3.5	17	29.4
	VP35---IF14	6	35	-	3	20	35	G1/4"-F	10	4.4	17	14.4
	VP35---IF14C	6	35	-	3	20	35	G1/4"-F	12	6.9	17	14.0
	VP35---IF14V	6	35	-	3	20	36	G1/4"-F	11	3.5	17	34.0
	VP40---IM18V	5	40	-	3	20	24.5	G1/8"-M	6	3.5	13	20.6
	VP40---IF18V	6	40	-	3	20	33	G1/8"-F	7.5	3.5	13	23.9
	VP40---IM14	5	40	-	3	20	24	G1/4"-M	11	4.4	17	14.3
	VP40---IM14C	5	40	-	3	20	28	G1/4"-M	10	7	17	15.2
	VP40---IM14V	5	40	-	3	20	25	G1/4"-M	8	3.5	17	29.9
	VP40---IF14	6	40	-	3	20	35	G1/4"-F	10	4.4	17	14.9
	VP40---IF14C	6	40	-	3	20	35	G1/4"-F	12	6.9	17	14.5
	VP40---IF14V	6	40	-	3	20	36	G1/4"-F	11	3.5	17	34.5
	VP50---IM18V	5	52	-	4.5	22	26.5	G1/8"-M	6	3.5	13	26.4
	VP50---IF18V	6	52	-	4.5	22	35	G1/8"-F	7.5	3.5	13	29.7
	VP50---IM14	5	52	-	4.5	22	26	G1/4"-M	11	4.4	17	20.1
	VP50---IM14C	5	52	-	4.5	22	30	G1/4"-M	10	7	17	21.0
VP50---IM14V	5	52	-	4.5	22	27	G1/4"-M	8	3.5	17	35.7	
VP50---IF14	6	52	-	4.5	22	37	G1/4"-F	10	4.4	17	20.7	
VP50---IF14C	6	52	-	4.5	22	37	G1/4"-F	12	6.9	17	20.3	
VP50---IF14V	6	52	-	4.5	22	38	G1/4"-F	11	3.5	17	40.3	
VP60---IM18V	5	60	-	4.5	22	26.5	G1/8"-M	6	3.5	13	30.1	
VP60---IF18V	6	60	-	4.5	22	35	G1/8"-F	7.5	3.5	13	33.4	
VP60---IM14	5	60	-	4.5	22	26	G1/4"-M	11	4.4	17	23.8	
VP60---IM14C	5	60	-	4.5	22	30	G1/4"-M	10	7	17	24.7	
VP60---IM14V	5	60	-	4.5	22	27	G1/4"-M	8	3.5	17	39.4	
VP60---IF14	6	60	-	4.5	22	37	G1/4"-F	10	4.4	17	24.4	
VP60---IF14C	6	60	-	4.5	22	37	G1/4"-F	12	6.9	17	24.0	
VP60---IF14V	6	60	-	4.5	22	38	G1/4"-F	11	3.5	17	44.0	

Groupe 3

Ø 75 mm	VP75---IM18V	9	75	23	4.5	32	-	G1/8"-M	8	6	-	58.3
	VP75---IM14	7	75	-	4.5	32	38	G1/4"-M	11	8	21	46.4
	VP75---IM14V	7	75	-	4.5	32	37	G1/4"-M	8	6	17	68.9
	VP75---IF14	8	75	-	4.5	32	47	G1/4"-F	10	8	21	50.3
	VP75---IF14V	8	75	-	4.5	32	51	G1/4"-F	9	6	17	78.5

Note : toutes les cotes sont indiquées en mm (1) f = Flèche de la ventouse. (2) Ø G2 = Ø de passage intérieur de l'insert.

VP

Ventouses plates Ø 8 à 75 mm

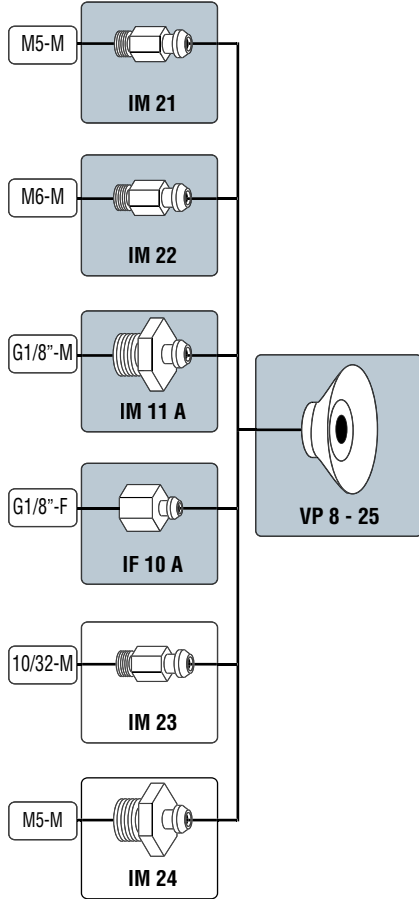
Schémas de montage



2
VP

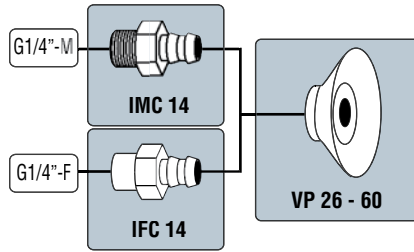
VP 8 - 25 Groupe 1

Inserts canules **C**

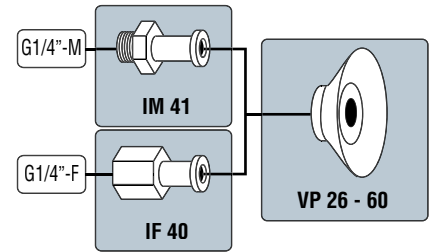


VP 26 - 60 Groupe 2

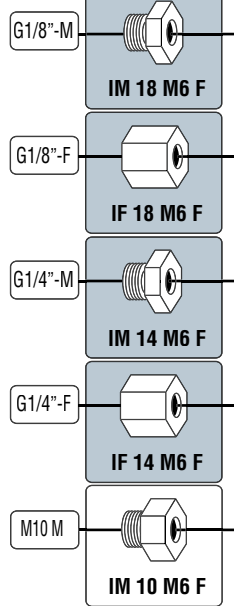
Inserts canules **C**



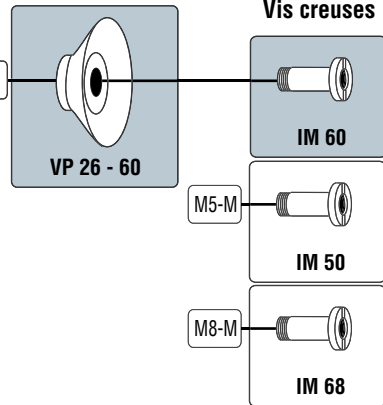
Inserts emmanchés **E**



Adaptateurs



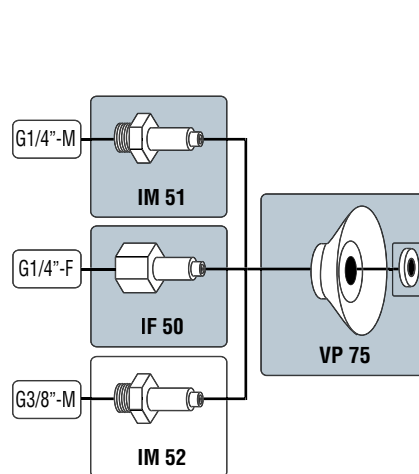
Inserts démontables **V**



Vis creuses

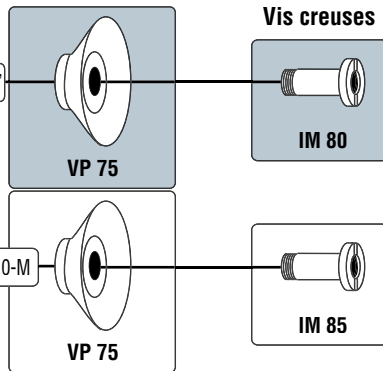
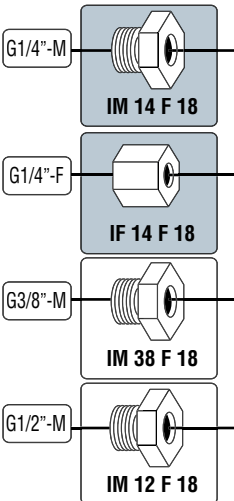
VP 75 Groupe 3

Inserts sertis usine **S**



Inserts démontables **V**

Adaptateurs



Vis creuses

- Combinaisons «ventouse + insert» référencées page 2/4
- Solutions de montage optionnelles à commander en références séparées

Cotes d'encombrement des inserts et ventouses : voir page 2/8.

VP

Ventouses plates Ø 8 à 75 mm

Encombrements

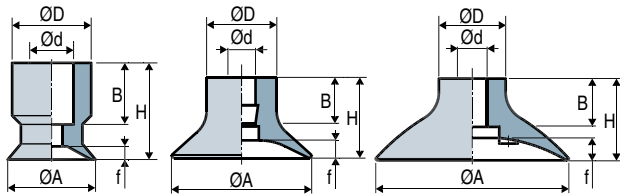


Ventouses

VP 8... 10

VP 15... 25

VP 26... 75

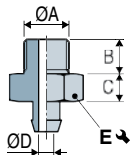


(1) f = Flèche de la ventouse.

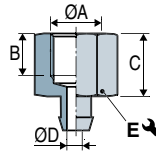
	ØA	H	Ød	ØD	f ⁽¹⁾	B	
VP 8	7.5	10	5	9	1.3	7	0.4
VP 10	10	10.5	4.4	9	1.5	7	0.5
VP 15	15	11	4	9	2.25	7	0.7
VP 20	20	11.5	4	10	3	7	1.2
VP 25	25	12	4	10	3	7	1.4
VP 26	26	19.5	8	16	3	13	3.7
VP 30	30	19	8	16	2.5	13	4
VP 35	35	20	8	16	3	13	5.6
VP 40	40	20	8	16	3	13	9
VP 50	52	22	8	18	4.5	13	14
VP 60	60	22	8	18	4.5	13	16
VP 75	75	32	12	23	4.5	20	33

Inserts canules

Mâle - IM

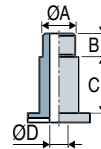


Femelle - IF



	ØA	B	C	ØD	E	Matière	
IM 11 A	G1/8"-M	7.5	6	3.5	14	Aluminium	4.1
IMC 14	G1/4"-M	10	8	7	17	Aluminium	8.7
IM 21 ⁽²⁾	M5-M	4.5	5	2.5	7	Laiton nickelé	3.1
IM 22 ⁽²⁾	M6-M	5	5	3.5	7	Laiton nickelé	2.7
IM 23	10/32-M	4.5	5	2.5	7	Laiton	3
IM 24	M5-M	4.5	2.5	2.5	10	Laiton nickelé	3.2
IF 10 A	G1/8"-F	8	12	3.5	14	Aluminium	4
IFC 14	G1/4"-F	12	15	6.9	17	Aluminium	8

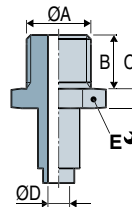
Vis creuses



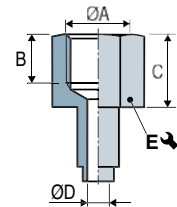
	ØA	B	C	ØD	Matière	
IM 50	M5-M	5	11	2.8	Laiton	7.4
IM 60 ^{(2) (3)}	M6-M	7	11	3.5	Laiton nickelé	7.5
IM 68	M8-M	8	11	5.2	Laiton nickelé	6.4
IM 80	G1/8"-M	8	18	6	Laiton nickelé	23.7
IM 85	M10x150-M	8	18	6	Laiton nickelé	23.5

Inserts sertis usine

Mâle - IM



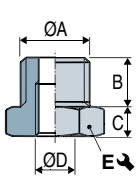
Femelle - IF



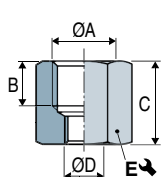
	ØA	B	C	ØD	E	Matière	
IM 51	G1/4"-M	11	6	4.4	17	Aluminium	11.8
IF 50	G1/4"-F	10	15	8	21	Aluminium	15.7
IM 52	G3/8"-M	11	6	8	21	Aluminium	14

Adaptateurs pour vis creuses

Mâle - IM



Femelle - IF



	ØA	B	C	ØD	E	Matière	
IM 10 M6F	M10-M	7	3.5	M6-F	13	Laiton	5.9
IM 12 F18	G1/2"-M	14	6	G1/8"-F	22	Laiton nickelé	46.8
IM 14 M6F	G1/4"-M	8	5	M6-F	17	Laiton nickelé	15.9
IM 14 F18	G1/4"-M	8	5	G1/8"-F	17	Laiton nickelé	10.6
IM 18 M6F	G1/8"-M	6	4.5	M6-F	13	Laiton nickelé	6.6
IM 38 F18	G3/8"-M	9	5	G1/8"-F	19	Laiton nickelé	18.8
IF 14 M6F	G1/4"-F	11	16	M6-F	17	Laiton nickelé	20.5
IF 18 M6F	G1/8"-F	7.5	13	M6-F	13	Laiton nickelé	9.9
IF 14 F18	G1/4"-F	9	19	G1/8"-F	17	Laiton nickelé	20.2

Les valeurs sont représentatives des caractéristiques moyennes de nos produits.

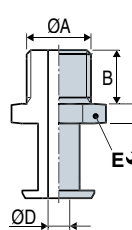
Note : toutes les cotes sont indiquées en mm.

(2) Version inserts buses : diamètre calibré pour diminuer les fuites en cas d'utilisation en caisson multi ventouses (voir page 4/9).

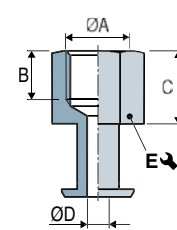
(3) Disponible en inox.

Inserts emmanchés

Mâle - IM



Femelle - IF



	ØA	B	C	ØD	E	Matière	
IM 41	G1/4"-M	11	4	4.4	17	Aluminium	7.8
IF 40	G1/4"-F	10	15	4.4	17	Aluminium	8.4