

HPVM
HYDRAULIC PILOT
CONTROL



INTRODUCTION

HPVM Pilot Control Valves are part of the extensive range of Hydreco Hydraulics products.

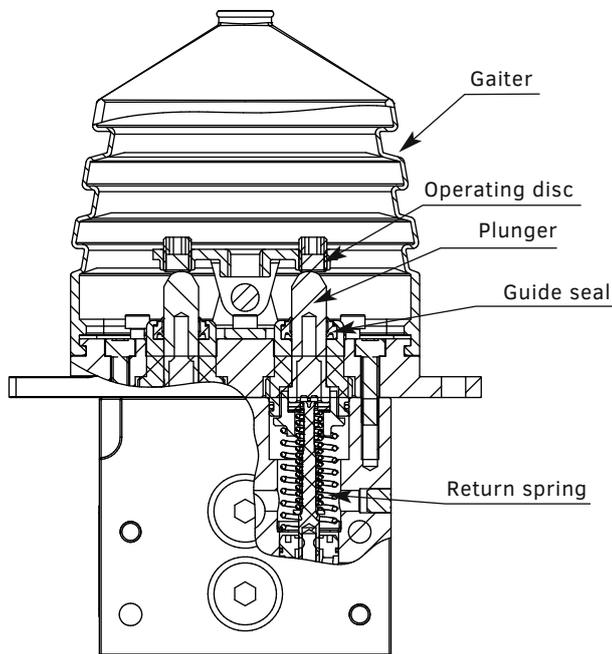
This product, with its single lever control, supported by an extensive range of characteristics and handles is suitable for a wide range of both mobile and industrial applications.

Our engineers can offer special support to optimise this product to suit your application.

BENEFITS

- Compact and lightweight
- Suitable for armrest of console mounting
- Compatible with a wide range of product
- Operator is protected from high temperature components
- Low hysteresis, high accuracy, pressure control curves
- Wide range of electrical options in both standard and multifunctional ergonomic handles
- Low effort lever control

PARTS



APPLICATIONS

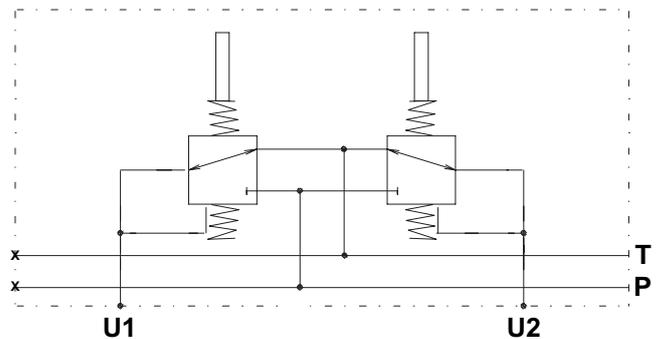
- Forklift trucks
- Drilling rigs
- Forestry machines
- Container handlers
- Cranes
- Mining
- Material handling

TECHNICAL FEATURES

MAXIMUM OPERATING PRESSURE	inlet (P port)	50 bar	725 psi
	back (T port)	3 bar	43.5 psi
CONTROL FLOW	range	5 to 20 l/min	1.3 to 5.3 gpm
MAXIMUM HYSTERESIS		±0.5 bar	± 7.3 psi
SERVICE PORTS		1/4" BSP	7/16" UNF

RANGE TEMPERATURES	ambient	-20 to +54 °C	-4 to +130 °F
	fluid	-20 to +82 °C	-4 to +180 °F
FLUID TYPE	mineral oils ISO, HM and HV		
FLUID CONTAMINATION	ISO 4406:1999 class 20/18/15		

HYDRAULIC SYMBOL (TYPICAL)



See others model's hydraulic symbols at page 4

Hydreco Hydraulics reserves the right to update the information and data contained in this catalogue at any time without notice

HPVM- [] - [] - [] - **F** - [] - [] - []

MODEL _____
HPV Hydraulic Pilot Valve
SERIES _____

MODEL TYPE _____
01 Lever spring returned to neutral
02 Lever frictioned in any position
03 Lever frictioned in any position with neutral sensor
04 Lever detented at both stroke ends
05 Lever detented in neutral position
06 Lever detented in neutral and frictioned hold in any position
07 Lever detented to U1 and spring return to neutral from U2
08 Lever detented to U2 and spring return to neutral from U1

HANDLE STYLE _____
 (refer to HANDLE catalogue for complete handle options definition)
W Without handle
KB Straight handle without electric switch
S Straight handle with electric switch
SA Straight handle without electric switch
SD Straight handle with electric switch
SX Straight handle with electric switch
SS Straight handle with electric switch to close and safety button
SY Straight handle with electric switch dual rocker type
SZ2 Straight handle with 2 positions latched rocker
SZ3 Straight handle with 3 positions latched rocker
E MFE handle series
EX EXM handle (multifunctional) series

MICRO SWITCH OPTIONS
 (OMIT if not required)
M1 1 switch senses out of centre position
M2 2 switches sense movement away from neutral each way
M3 1 switch senses forward movement away from neutral
M4 1 switch senses backward movement away from neutral

PORTS
 Omit for 1/4" BSP
S 7/16"- 20 UNF SAE4

RETURN SPRING
0 Standard : 1.4 to 2.8 daN
1 Medium : 3.0 to 4.5 daN

CONTROL PLUNGER

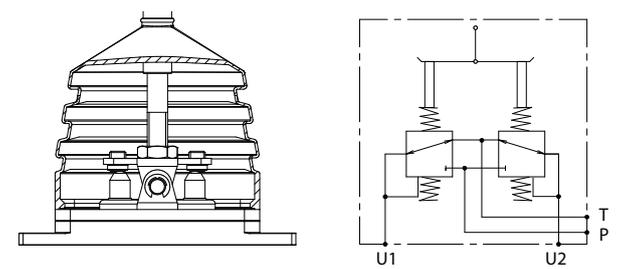
METERING CURVES
 See 'curve ID' in tables at pages 5 and 6.



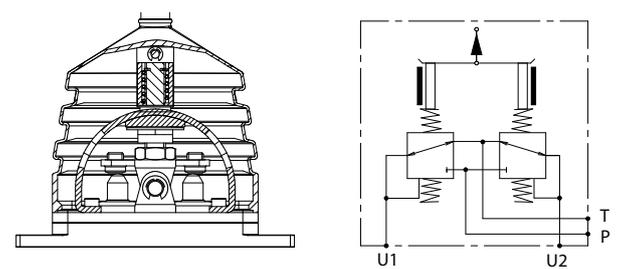
CODE EXAMPLE:

HPVM-01-KB-049-F-0 + 02-KB-090-F-0 (double)
 Hydraulic pilot valve series M, lever spring returned to neutral, duro plast knob handle, metering curve with step n. 049, standard plunger, standard return spring + Hydraulic pilot valve series M, lever frictioned in any position, duroplast knob handle, metering curve with step n. 090, standard plunger, standard return spring.

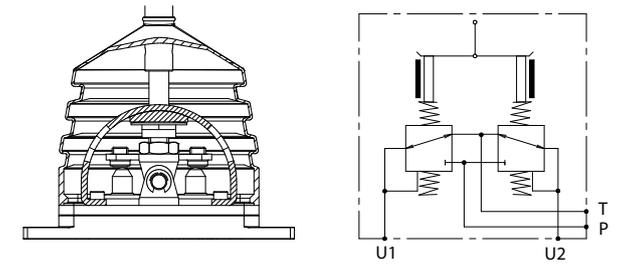
HYDRAULIC SYMBOL (01 MODEL TYPE)



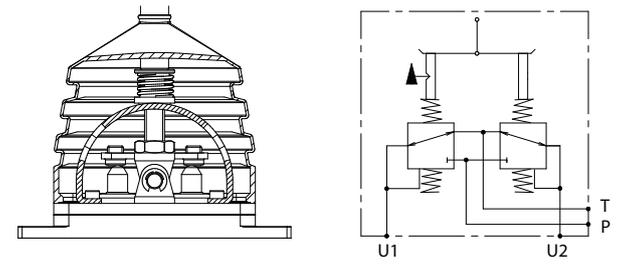
HYDRAULIC SYMBOL (06 MODEL TYPE)



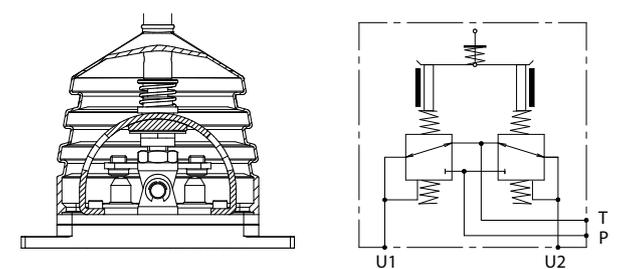
HYDRAULIC SYMBOL (02 MODEL TYPE)



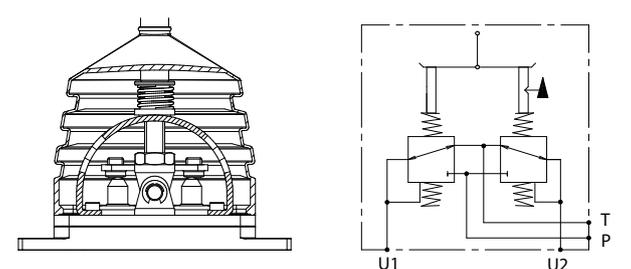
HYDRAULIC SYMBOL (07 MODEL TYPE)



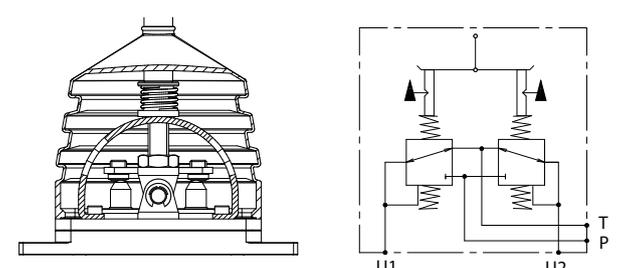
HYDRAULIC SYMBOL (03 MODEL TYPE)



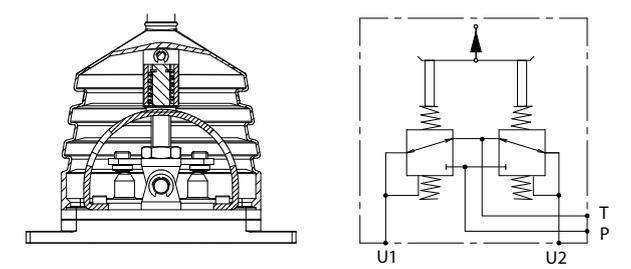
HYDRAULIC SYMBOL (08 MODEL TYPE)



HYDRAULIC SYMBOL (04 MODEL TYPE)

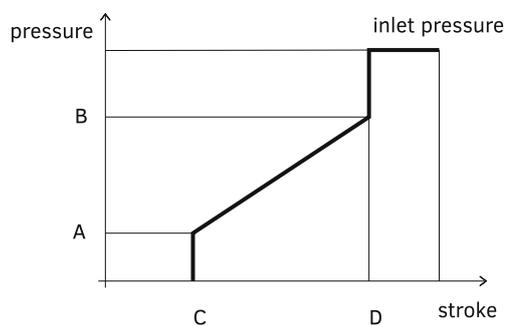


HYDRAULIC SYMBOL (05 MODEL TYPE)



METERING CURVES - WITH STEP

Tolerance on pressure settings ± 0.5 bar (7.25 psi). Other metering curves are available upon request.

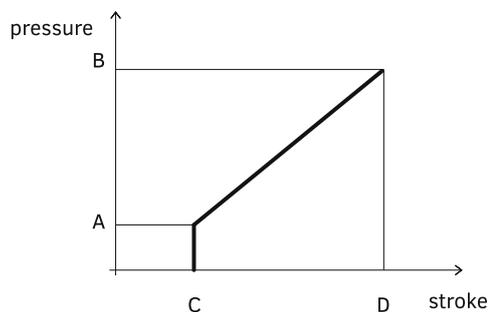


PRESSURE (bar psi)		STROKE (mm in)		CURVE ID
A	B	C	D	
0.0 0.0	13.0 188.6	0.5 0.02	8.5 0.33	027
0.5 7.3	4.0 58.0	1.8 0.07	8.5 0.33	009
0.5 7.3	6.5 94.3	2.0 0.08	8.5 0.33	010
0.5 7.3	11.4 165.4	1.8 0.07	8.5 0.33	047
0.5 7.3	18.4 267.0	1.0 0.04	8.5 0.33	076
1.0 14.5	8.0 116.1	1.0 0.04	8.5 0.33	011
1.0 14.5	12.0 174.1	1.0 0.04	8.5 0.33	034
1.5 21.8	8.5 123.3	1.0 0.04	8.5 0.33	069
2.0 29.0	11.5 166.9	1.0 0.04	8.5 0.33	012
2.0 29.0	11.5 166.9	2.0 0.08	8.5 0.33	025
2.0 29.0	8.0 116.1	0.5 0.02	8.5 0.33	042
2.0 29.0	13.0 188.6	1.0 0.04	8.5 0.33	045
2.0 29.0	20.5 297.5	1.0 0.04	8.5 0.33	077
2.0 29.0	27.5 399.0	1.0 0.04	8.5 0.33	080
2.0 29.0	14.2 206.0	1.0 0.04	8.5 0.33	163
2.0 29.0	25.0 362.8	1.0 0.04	8.5 0.33	180
2.4 34.8	16.4 238.0	1.0 0.04	8.5 0.33	078
2.8 40.6	14.91 216.3	1.0 0.04	8.5 0.33	123
2.8 40.6	4.75 69.0	1.0 0.04	8.5 0.33	129
3.0 43.5	9.0 130.6	2.0 0.08	8.5 0.33	021
3.0 43.5	10.0 145.1	1.0 0.04	8.5 0.33	051
3.0 43.5	21.74 315.4	1.0 0.04	8.5 0.33	101
3.0 43.5	8.0 116.1	1.0 0.04	8.5 0.33	125
3.2 46.4	15.4 223.4	1.0 0.04	8.5 0.33	041
3.2 46.4	11.7 169.8	1.8 0.07	8.5 0.33	048
3.2 46.4	17.2 249.6	1.0 0.04	8.5 0.33	062
3.4 49.3	29.4 426.6	1.0 0.04	8.5 0.33	030
3.5 50.8	13.0 188.6	1.0 0.04	8.5 0.33	101
3.7 53.7	29.23 424.1	1.0 0.04	8.5 0.33	104
4.0 58.0	21.5 312.0	1.0 0.04	8.5 0.33	090
4.3 62.4	15.2 220.6	1.0 0.04	8.5 0.33	049
4.3 62.4	13.8 200.2	1.0 0.04	8.5 0.33	122
4.44 64.4	17.0 246.7	1.8 0.07	8.5 0.33	107
4.44 64.4	30.4 441.1	1.0 0.04	8.5 0.33	138
4.5 65.3	18.0 261.2	1.0 0.04	8.5 0.33	095
4.5 65.3	27.0 391.2	1.0 0.04	8.5 0.33	108
4.8 69.6	17.4 252.5	2.0 0.08	8.5 0.33	200
4.9 71.1	18.9 274.2	1.0 0.04	8.5 0.33	018
4.9 71.1	17.5 254.0	2.0 0.08	8.5 0.33	202
5.0 72.6	14.5 210.4	1.0 0.04	8.5 0.33	019
5.0 72.6	12.0 174.1	1.0 0.04	8.5 0.33	023
5.0 72.6	15.9 230.7	1.0 0.04	8.5 0.33	026
5.0 72.6	24.5 355.5	1.8 0.07	8.5 0.33	109
5.0 72.6	23.0 333.7	1.0 0.04	8.5 0.33	116
5.0 72.6	19.3 280.0	1.0 0.04	8.5 0.33	201

PRESSURE (bar psi)		STROKE (mm in)		CURVE ID
A	B	C	D	
5.1 74.0	19.1 277.1	1.2 0.05	8.5 0.33	112
5.5 79.8	24.2 351.1	1.0 0.04	8.5 0.33	028
5.5 79.8	27.0 391.8	1.0 0.04	8.5 0.33	139
5.7 82.7	17.8 258.3	1.0 0.04	8.5 0.33	137
5.8 84.2	22.0 319.2	1.8 0.07	8.5 0.33	015
5.8 84.2	22.4 325.0	1.0 0.04	8.5 0.33	082
5.8 84.2	22.0 319.2	1.0 0.04	8.5 0.33	088
5.8 84.2	19.8 287.3	1.0 0.04	8.5 0.33	106
5.8 84.2	23.9 346.8	1.0 0.04	8.5 0.33	113
5.8 84.2	26.0 377.3	1.0 0.04	8.5 0.33	115
5.9 88.6	12.9 187.2	1.0 0.04	8.5 0.33	065
6.0 85.6	28.7 416.4	1.0 0.04	8.5 0.33	150
6.1 88.6	15.1 219.1	1.0 0.04	8.5 0.33	209
6.5 88.5	14.0 203.1	1.0 0.04	8.5 0.33	020
6.5 88.5	28.0 406.3	1.0 0.04	8.5 0.33	063
6.6 95.8	20.7 300.4	1.0 0.04	8.5 0.33	043
6.6 95.8	22.7 329.4	1.5 0.06	8.5 0.33	181
6.7 97.2	16.2 235.1	1.0 0.04	8.5 0.33	127
7.0 101.6	26.7 387.4	0.5 0.02	8.5 0.33	135
7.2 104.5	15.3 222.0	1.0 0.04	8.5 0.33	100
7.2 104.5	16.7 242.3	1.0 0.04	8.5 0.33	199
7.57 109.8	24.6 357.0	0.5 0.02	8.5 0.33	136
7.6 110.3	21.7 314.9	1.0 0.04	8.5 0.33	198
7.6 110.3	21.5 312.0	1.0 0.04	8.5 0.33	207
8.0 116.1	24.2 351.1	1.0 0.04	8.5 0.33	024
8.0 116.1	20.7 300.4	1.8 0.07	8.5 0.33	044
8.0 116.1	23.0 333.7	1.0 0.04	8.5 0.33	173
8.2 119.0	24.4 354.0	1.8 0.07	8.5 0.33	013
8.2 119.0	24.5 355.5	1.0 0.04	8.5 0.33	014
8.4 121.9	50.0 725.5	1.0 0.04	8.5 0.33	073
8.4 121.9	21.1 306.2	3.25 0.13	8.5 0.33	098
8.4 121.9	27.9 404.8	1.8 0.07	8.5 0.33	120
8.5 123.3	16.2 235.1	1.0 0.04	8.5 0.33	175
9.0 130.6	15.5 224.9	2.0 0.08	8.5 0.33	084
9.8 142.2	26.0 377.3	1.8 0.07	8.5 0.33	032
14.0 203.1	29.0 420.8	1.0 0.04	8.5 0.33	031

METERING CURVES - WITHOUT STEP

Tolerance on pressure settings ± 0.5 bar (7.25 psi). Other metering curves are available upon request.



PRESSURE (bar psi)		STROKE (mm in)		CURVE ID
A	B	C	D	
0.0 0.0	64.0 928.6	2.0 0.08	9.0 0.35	022
0.0 0.0	115.0 1668.7	2.0 0.08	9.0 0.35	033
0.0 0.0	38.0 551.4	1.0 0.04	9.0 0.35	061
0.0 0.0	130.0 1886.3	1.0 0.04	9.0 0.35	143
0.0 0.0	27.3 396.1	1.0 0.04	9.0 0.35	205
0.5 7.3	12.2 177.0	1.8 0.07	9.0 0.35	087
0.7 10.2	30.0 435.3	1.0 0.04	9.0 0.35	071
1.0 14.5	15.5 224.9	1.0 0.04	9.0 0.35	178
1.4 20.3	11.5 166.9	1.0 0.04	9.0 0.35	072
1.4 20.3	12.2 177.0	1.0 0.04	9.0 0.35	155
1.5 21.8	9.0 130.6	1.0 0.04	9.0 0.35	086
1.5 21.8	39.5 573.1	1.0 0.04	9.0 0.35	093
2.0 29.0	8.0 116.1	1.0 0.04	9.0 0.35	004
2.0 29.0	15.0 217.7	1.0 0.04	9.0 0.35	060
2.0 29.0	52.5 761.8	1.0 0.04	9.0 0.35	092
2.8 40.6	5.9 85.6	1.0 0.04	9.0 0.35	157
3.0 43.5	23.0 333.7	1.0 0.04	9.0 0.35	058
3.0 43.5	14.0 203.1	1.0 0.04	9.0 0.35	162
3.0 43.5	10.0 145.1	1.0 0.04	9.0 0.35	165
3.2 46.4	18.1 262.6	1.0 0.04	9.0 0.35	053
3.2 46.4	20.0 290.2	1.0 0.04	9.0 0.35	096
3.2 46.4	16.2 235.1	1.0 0.04	9.0 0.35	153
3.5 50.8	25.7 372.9	1.0 0.04	9.0 0.35	171
3.7 53.7	31.0 449.8	1.0 0.04	9.0 0.35	168
3.8 55.1	23.7 343.9	1.0 0.04	9.0 0.35	074
4.0 58.0	10.0 145.1	1.0 0.04	9.0 0.35	005
4.0 58.0	8.0 116.1	1.0 0.04	9.0 0.35	054
4.0 58.0	16.0 132.2	1.0 0.04	9.0 0.35	057
4.0 58.0	6.0 87.1	1.0 0.04	9.0 0.35	170
4.3 62.4	10.0 145.1	1.0 0.04	9.0 0.35	158
4.4 63.8	21.6 313.4	1.0 0.04	9.0 0.35	126
4.7 68.2	27.6 400.5	1.0 0.04	9.0 0.35	132
4.9 71.1	19.8 287.3	1.0 0.04	9.0 0.35	204
5.0 72.6	10.5 152.4	1.0 0.04	9.0 0.35	066
5.0 72.6	18.0 261.2	1.0 0.04	9.0 0.35	079
5.0 72.6	33.0 478.8	1.0 0.04	9.0 0.35	085
5.0 72.6	20.0 290.2	1.0 0.04	9.0 0.35	089
5.0 72.6	19.9 288.7	1.0 0.04	9.0 0.35	094
5.0 72.6	45.0 653.0	1.0 0.04	9.0 0.35	169
5.0 72.6	12.0 174.1	1.0 0.04	9.0 0.35	196
5.0 72.6	26.0 377.3	1.0 0.04	9.0 0.35	203
5.5 79.8	26.7 387.4	1.1 0.04	9.0 0.35	067
5.5 79.8	25.5 370.0	1.1 0.04	9.0 0.35	075
5.5 79.8	50.0 725.5	2.0 0.08	9.0 0.35	145
5.6 79.8	21.4 310.5	1.0 0.04	9.0 0.35	208

PRESSURE (bar psi)		STROKE (mm in)		CURVE ID
A	B	C	D	
5.7 82.7	64.0 928.6	1.0 0.04	9.0 0.35	022
5.8 84.2	115.0 1668.7	1.6 0.06	9.0 0.35	033
5.8 84.2	38.0 551.4	1.0 0.04	9.0 0.35	061
5.8 84.2	130.0 1886.3	1.8 0.07	9.0 0.35	143
5.8 84.2	27.3 396.1	1.0 0.04	9.0 0.35	205
6.0 87.1	12.2 177.0	2.0 0.08	9.0 0.35	087
6.0 87.1	30.0 435.3	1.0 0.04	9.0 0.35	071
6.0 87.1	15.5 224.9	1.0 0.04	9.0 0.35	178
6.0 87.1	11.5 166.9	1.0 0.04	9.0 0.35	072
6.0 87.1	12.2 177.0	1.0 0.04	9.0 0.35	155
6.0 87.1	9.0 130.6	1.0 0.04	9.0 0.35	086
6.4 92.9	39.5 573.1	1.0 0.04	9.0 0.35	093
6.5 94.3	8.0 116.1	2.0 0.08	9.0 0.35	004
7.0 101.6	15.0 217.7	1.0 0.04	9.0 0.35	060
7.0 101.6	52.5 761.8	1.0 0.04	9.0 0.35	092
7.0 101.6	5.9 85.6	1.0 0.04	9.0 0.35	157
7.0 101.6	23.0 333.7	1.0 0.04	9.0 0.35	058
7.5 108.8	14.0 203.1	1.0 0.04	9.0 0.35	162
8.0 116.1	10.0 145.1	1.0 0.04	9.0 0.35	165
8.1 117.5	18.1 262.6	3.25 0.13	9.0 0.35	053
8.3 120.4	20.0 290.2	1.0 0.04	9.0 0.35	096
8.6 124.8	16.2 235.1	1.0 0.04	9.0 0.35	153
9.1 132.0	25.7 372.9	1.0 0.04	9.0 0.35	171
11.5 166.9	31.0 449.8	1.0 0.04	9.0 0.35	168

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CONTACT INFORMATION

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AMERICAS

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APAC

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