

**INNOVATING
SAFETY**
since 1978

MANIFOLD SYSTEM



MANIFOLD SYSTEM



BENEFITS:

- Alternative choice to hose system
- Low increase of force and pressure
- Minimal heights
- Highest force in the minimum space
- Easy check and charge of pressure through the control panel
- Easy mounting
- Easy maintenance
- Long lasting



View updates online at:
www.specialsprings.com

TECHNICAL FEATURES

Piston sealed cylinders

Rod wiper against contaminants

Double self lubricating guiding elements



- **NITRIDED BODY:**
with hardness of ~ Hv 700
- **LAPPED BODY:**
with roughness of ~ $Ra \leq 0,05 \mu$
- **NITRIDED PISTON ROD:**
with hardness of ~ Hv 700
- **ROD (NITRIDED SUPERFINISHED):**
with roughness of ~ $Ra \leq 0,05 \mu$
- **MAXIMUM CHARGING PRESSURE:**
From 103 bar to 150 bar
- **MINIMUM TO CHARGING PRESSURE:**
20-25 bar a 20°C
- **MAXIMUM SPEED:**
From 0,8 m/sec to 1,6 m/sec
- In compliance with **PED 2014/68/EU** and **EN 13445:2015** Directive



Partcommunity and eCATALOGsolution by Cadenas to download easily and quickly 2-3D files of all Special Springs' Manifold cylinder

SAFETY




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Operating information  p. 5



Designing a Manifold System  p. 9



How to read the catalog  p. 12

Selection TAB

 p. 14

CR

1500 psi / 103 bar
2000 psi / 138 bar
1812 psi / 125 bar
2175 psi / 150 bar

Imperial thread  p. 16
Metric thread

CRD

1500 psi / 103 bar
2000 psi / 138 bar

Imperial thread  p. 26
Metric thread


CA

1595 psi / 110 bar

Metric thread  p. 34


CB

1595 psi / 110 bar

Metric thread  p. 38

CC


1595 psi / 110 bar

Metric thread  p. 42

SW

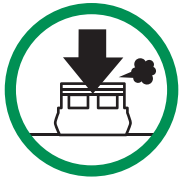
Secondary rod wiper  p. 47



Hoses and fittings
Control panels
Compensation tanks  p. 48



Counter plate
Service tools
Port plugs  p. 69



**Over
Stroke
Active
Safety**



**Over
Stroke
Marker**

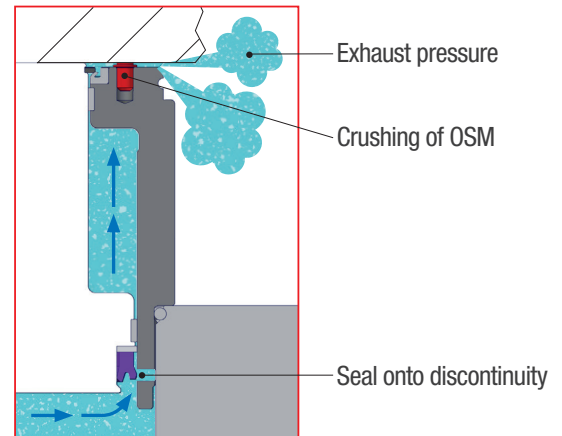
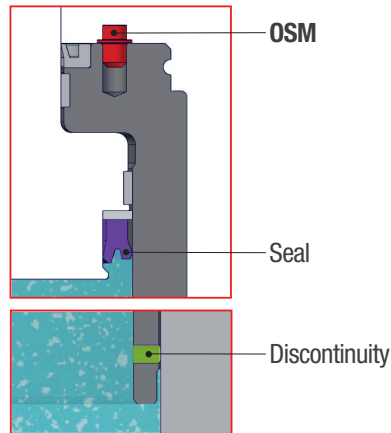
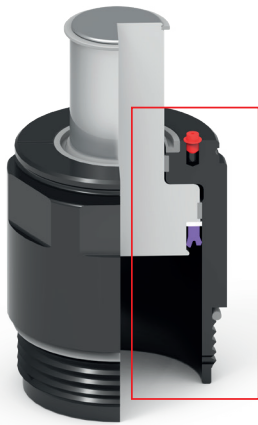
Standard on: CR - CRD

How it works

OSAS is the combination of a hole in the cylinder body with the sealing. It activates itself without deformation of the body. It releases in a controlled and complete way the pressure inside the plate when the cylinder undergoes an over stroke.

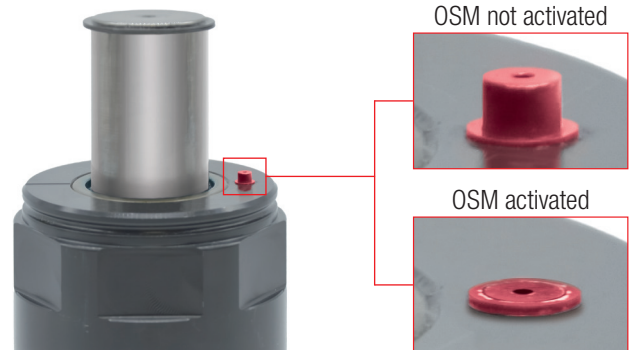
Benefits

- Reduces the risk of tool damage or injury due to ejection of parts under pressure.
- Self activates automatically regardless of users' intervention.
- Does not increase the price of cylinders.



The Over Stroke Marker OSM:

- Enables you to see immediately that the Manifold cylinder has been used over its maximum nominal stroke.
- Confirms that the Over Stroke Safety Feature OSAS has been activated.
- Allows you to act promptly on the die to remove the cause of the over stroke.
- Doesn't restrict the free positioning of the Manifold cylinder.
- Improves user safety for Special Springs' nitrogen Manifold cylinders.

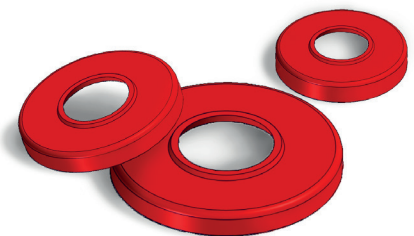


**Secondary rod
Wiper**

More info: p. 47

Benefits

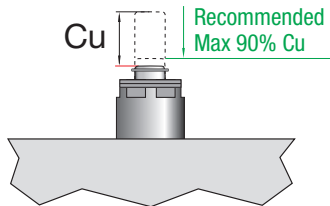
- Excellent protection from liquid and solid contaminants.
- Maximum chemical resistance to lubricants thanks to high-performance polyurethane.
- Longer lifetime for guiding elements and dynamic seals.
- Minimal loss of nominal stroke.
- Easy to insert.
- No restrictions when positioning the cylinder.



Always charge Manifold cylinder only with NITROGEN GAS (N₂).



All Special Springs nitrogen cylinders are designed with a stroke reserve from 1 to 3 mm. Therefore, the nominal value (Cu) is fully applicable. However, it is recommended not to exceed 90% of Cu in practical use in order to avoid the risk of any over stroke caused by changes or errors in tools, this would result in irreparable damages to the Manifold cylinders and serious danger to personnel.



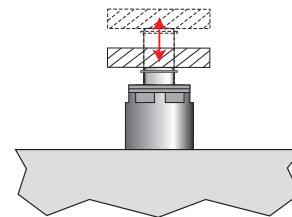
During the Venting procedure, pay attention to the gas flow and use suitable precautions.



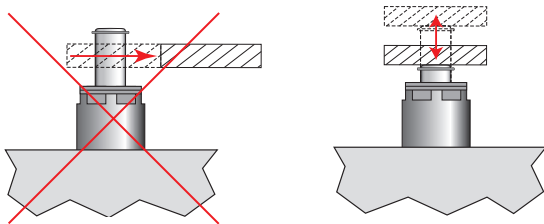
The maximum speed of the rod is recommended for each model.

MAX. SPEED

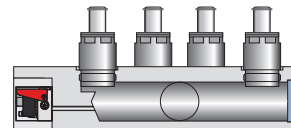
see Series pages



It is forbidden any uncontrolled rod return. It may cause damages, mechanical failures to Manifold cylinder.

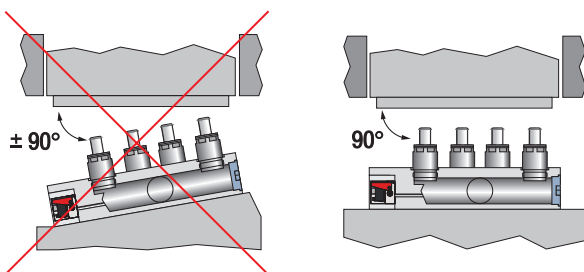


Do not use the Manifold cylinder and plate over 80°C / 176°F.

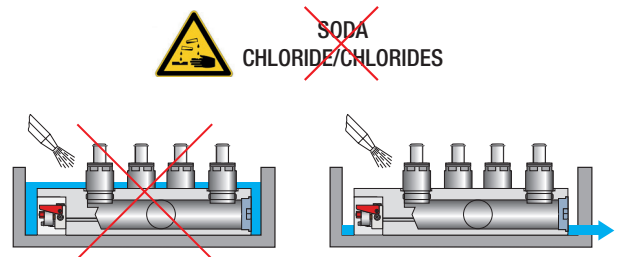


32 - 176 °F
0 - 80 °C

Position the Manifold plates so that the cylinders rods are perpendicular to the press slide (Ram).



Protect the surface of Manifold plates from objects and/or aggressive fluids (soda and chlorides). If they are used to clean the die, remove any residue from the Manifold cylinder and plate.



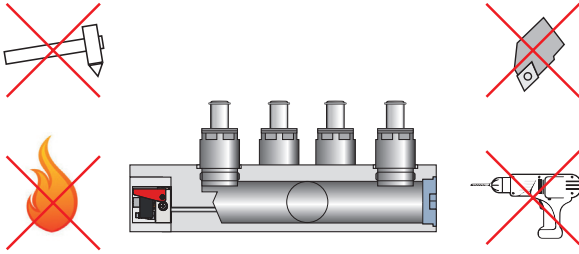
In the presence of liquid or solid contaminants, it is advisable to use Manifold cylinders with secondary wiper (SW).



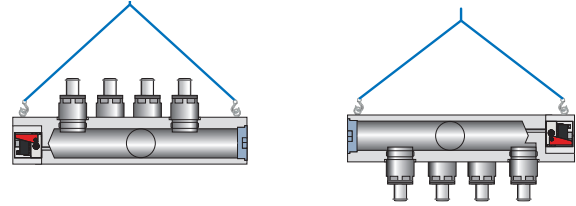
OPERATING INSTRUCTION



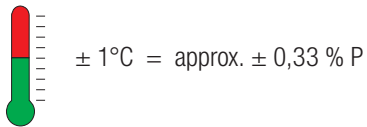
Do not machine/drill the Manifold cylinder and plate.



Always use eye bolts to lift the MANIFOLD plates.



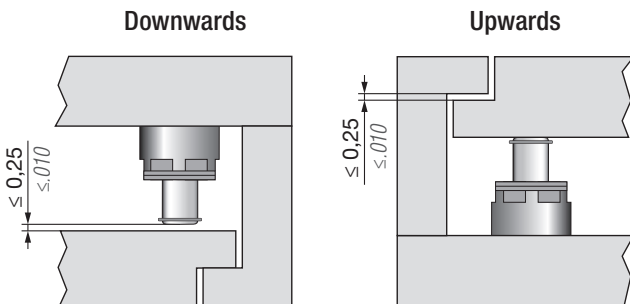
Any variation in temperature, respect to the nominal calculation value of 20°C, causes a change in gas pressure (P).



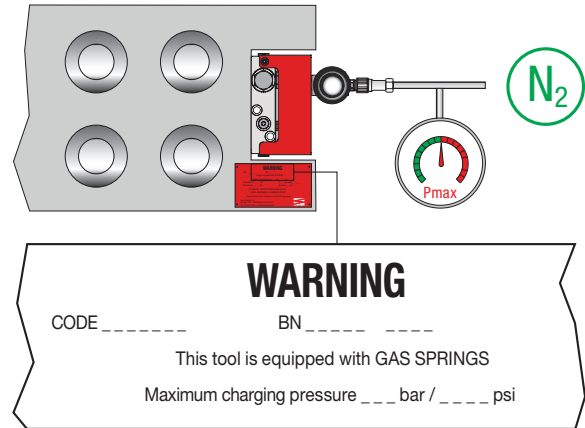
If a cylinder has structural damage, fully exhaust all the pressure before any handling.



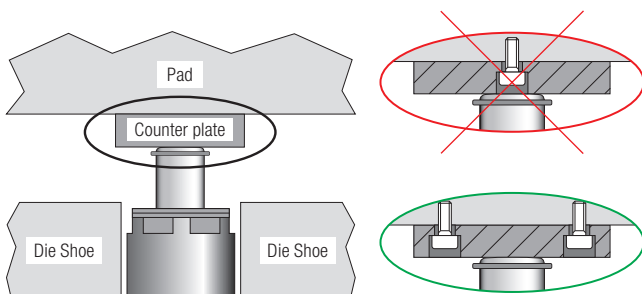
When the die is open, the cylinders should be fully extended with a clearance of 0.010 Inch / 0,25 mm maximum. This allows the manifold and pressure pad to be more easily installed or removed for servicing. In an downwards application, the clearance occurs between the end of the cylinder rod and the pad. In upwards application, the clearance is between the pad and its retainer system.



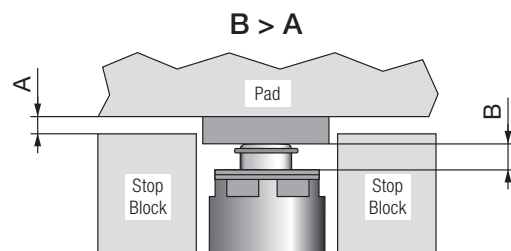
Do not charge the Manifold plate to a higher pressure than the pressure marked by the laser on the warning plate, or higher than the Pmax marked on each cylinder.



Avoid the contact of the rods with holes, metal chips or imperfections of the die. The use of tempered counterplates is always recommended.

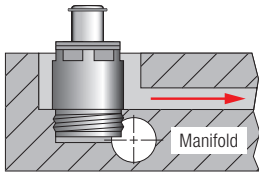


In the case that overstroke conditions may occur (for example during regular maintenance operations), use the stop blocks to prevent damage to the cylinder. The stop blocks must be equal to or greater than the size of the fully compressed cylinder.

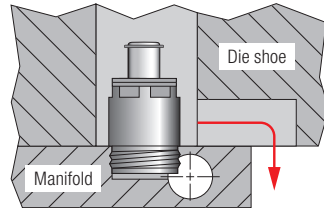


The presence /the production of drain slots of proper dimensions is necessary to prevent any obstruction caused by lubricants, metal chips or cleaning solvents.

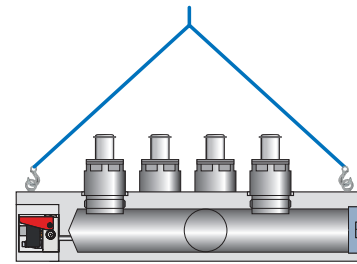
Drain Slot in Manifold



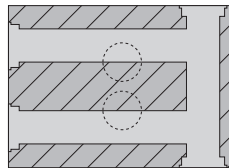
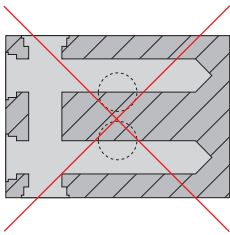
Drain Slot in Die Shoe



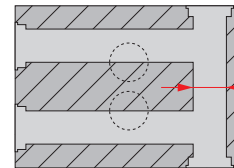
The lifting handling hole in the Manifold plates must allow the correct installation and handling of the plate without risks of damaging the Manifold cylinders.



The compensation holes must **NOT** be blind if possible. This enables the cleaning operation of the plate from machining chips.

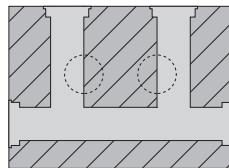
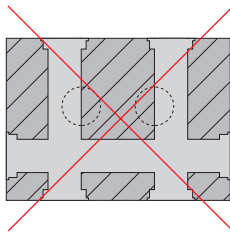


Always use the largest possible diameter for the compensation holes in order to obtain the maximum volume of nitrogen.



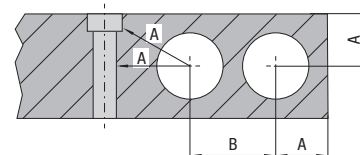
see pag. 10-11

It is advisable to minimize the number of caps without changing the volume required, in order to reduce the plate processing costs.

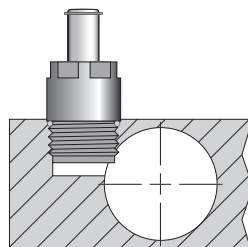
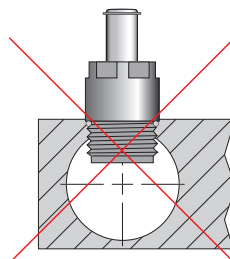


Keep/Consider a minimum thickness of material around the compensation holes in the plate.

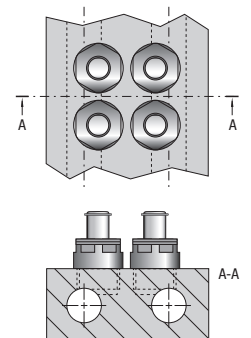
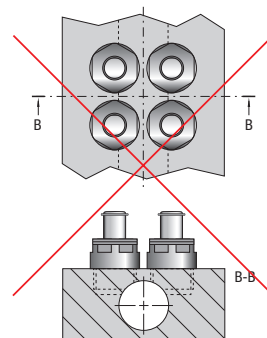
see pag. 10



It is recommended to place the Manifold fixing holes away from the compensation holes, in order to secure a better grip of the thread. The fixing holes must have sufficient thread depth.



When the Manifold cylinders are positioned next to each other, a single compensating hole that crosses the central area, under the cylinders, weakens the plate structure, making it inadequate to support the cylinders in working conditions. In this case it is advisable to use two smaller holes on the outside of the cylinders.



OPERATING INSTRUCTION



Max Speed

Do not exceed the maximum rod speed indicated. Exceeding speed can reduce the cylinder's life.



If pressure losses occur after extended use or particularly heavy applications, this indicates that the sealing gaskets are worn or damaged. Using special tools and kits, and with detailed instructions, it is possible to restore the original seal and guide conditions. This maintenance activity must only be conducted by qualified personnel. Errors would cause serious injury or reduce the working life of the cylinders. Before carrying out any work on the system, fully exhaust all pressure and ensure that the rod is fully retracted into the body.



For a safer use, always provide all tools together with the instruction sheets included with Special Springs' Manifold cylinders and accessories.

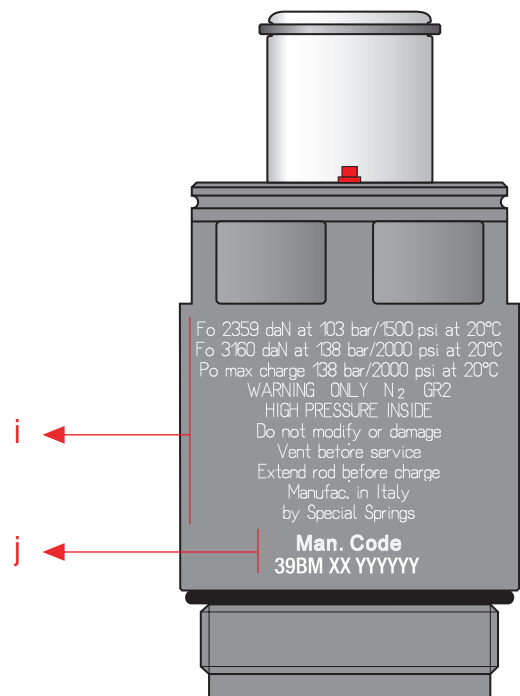
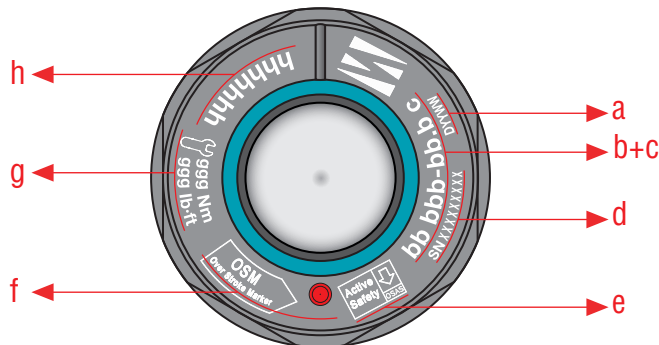


Maintenance kits contains:

- Guide rings;
- O-ring and grease;
- Rod seal;
- Rod wiper;
- Instructions sheet.
- Back-up ring;

LASER MARKING

- a) Production date
- b) Model Part Number
- c) Revision indicator
- d) Batch number
- e) Over stroke active safety
- f) Over Stroke Marker
- g) Torque force
- h) Thread
- i) General info
- j) Maintenance Kit



15 ton/15000 daN

Calculation example

1 Force

Define how much force is needed for stamping operation.

Example:

We consider an example where 15 ton/15000 daN of force is required for a conventional draw of a rectangular part.



2 Cylinder Quantity

Fix the number of points to distribute the force across the pad. When making force calculations, it is best consider variance in part thickness, tensile strength, and die wear, and so use a higher force into the design than is originally calculated.

INITIAL FORCE CHOICES:

Series Manifold cylinder	1500 psi 103 bar		1595 psi 110 bar		1823psi 125 bar		2000 psi 138 bar		2175 psi 150 bar	
	ton	daN	ton	daN	ton	daN	ton	daN	ton	daN
CR / CRD 750	.5	500	-	-	-	-	.75	750	-	-
CR / CRD 1500	1	1000	-	-	-	-	1.5	1500	-	-
CR / CRD 3000	2.5	2500	-	-	-	-	3	3000	-	-
CR / CRD 5000	4	4000	-	-	-	-	5	5000	-	-
CR / CRD 8000	6	6000	-	-	-	-	8	8000	-	-
CC 500	-	-	.54	540	-	-	-	-	-	-
CC / CB 1000	-	-	1.06	1060	-	-	-	-	-	-
CC / CB/ CA 2500	-	-	2.52	2520	-	-	-	-	-	-
CR 5200	-	-	-	-	4.37	4370	-	-	5.24	5240
CR 7700	-	-	-	-	6.44	6440	-	-	7.73	7730
CR 10700	-	-	-	-	8.91	8910	-	-	10.69	10690

Example:

The maximum design force is 20 ton - 20000 daN, more than the 15 ton - 15000 daN required. We decide to distribute on 8 force points, with 2.5 ton - 2500 daN on each one, because it allows a good force distribution.

Cylinder Choices:

Quantity Needed:

.5 ton - 500 daN	40
1 ton - 1000 daN	20
2.5 ton - 2500 daN	8
4 ton - 4000 daN	5
6 ton - 6000 daN	4

3 Cylinder Stroke

Pad travel defines the cylinder stroke length. Choose the stroke length that will not be exceeded during stamping operation.

Example:

The travel of the pad is 1.75 inch - 44,5 mm so the proper cylinder stroke for this application is 2 inch - 50,8 mm.

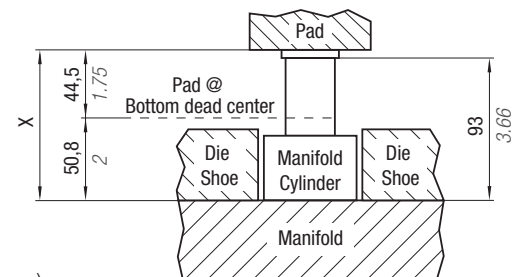
4 Cylinder Profile

Measurement from the bottom of the shoe to the bottom of the pad in the die-open position is known as the "X" dimension. Choose a cylinder that closely matches this dimension, remembering that the cylinder should be always protected from overstroking.

Example:

In our example the "X" dimension is 3.75 inch - 95,3 mm.

The appropriate cylinder choice is the **CRD3000-2.00A** (total length 3.66 inch - 93 mm).



5 Swept Volume

Calculate the **Moved Volume (MV)**, the amount of available volume change during the stroke.

$$(\text{MV}) \text{ Moved Volume} = \text{Number of gas springs} \times \text{Working stroke of gas springs} \times (\text{S}) \text{ Rod/piston seal area}$$

Example:

$$\text{MV} = 8 \times 1.75 \text{ inch} \times 3.6 \text{ inch}^2 = 49.7 \text{ inch}^3$$

see Series pages

P max 2000 psi 138 bar		P min 363 psi 25 bar		S 3.55 in ² 22,90 cm ²		T*min		T**min		-lb - Kg	
Cu	L	B	T*min	T**min							
inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	-lb	- Kg
1.00	25,4	2,66	67,6	1,25	31,8	2,01	51,0	2,17	55,0	2,97	1,35
1.50	38,1	3,16	80,3	1,75	44,5	2,24	57,0	2,44	62,0	3,25	1,47
2.00	50,8	3,66	93,0	2,25	57,2	2,76	70,0	2,91	74,0	3,52	1,60

$$\text{MV} = 8 \times 1.75 \text{ mm} \times 2290 \text{ mm}^2 = 815.240 \text{ mm}^3$$

[Note: S = 22,90 cm² = 22,90 x 100 mm² = 2290mm²]

15 ton/15000 daN

Calculation example

6 Pressure Rise

Desired pressure rise is selected according to stamping operation type. For example draw dies normally require 10-20% of pressure rise, while other stamping system can accept a higher value. According to the desired pressure rise, the pressure factor can be read on the table. Then the total manifold volume is calculated by multiplying the Moved Volume (MV) by the pressure factor (PF):

$$\text{Total Volume} = \text{MV} \times \text{PF}$$

Desired Pressure Rise	PF
10%	10
15%	6.66
20%	5

Example (for 10% pressure rise):

$$\text{Total Volume} = \text{MV} \times \text{PF}$$

$$\text{Total Volume} = 49.7 \text{ inch}^3 \times 10 = 497 \text{ inch}^3$$

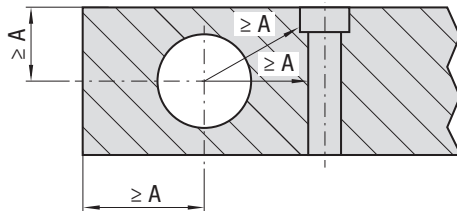
$$= 815.240 \text{ mm}^3 \times 10 = 8.152.400 \text{ mm}^3$$

7 Hole diameter

Choose the diameter of the hole that best suits the project from the tables below, considering that it is recommended to design the system with the largest hole diameters when the thickness of the plate allows it. This reduces the length of the drilled holes and the machining costs. Once the diameter of the holes has been chosen, it is possible to identify the volume per unit of drilling length (Unit volume) from the table.

Example:

For a plate measuring 80 inch x 48 inch - 2032 mm x 1219 mm, the largest diameter volume hole is 1.5 inch - 38,1 mm and the volume per linear unit of drilling is 1.767 inch³/inch - 11,40 mm³/mm.



see tables below

Ø Hole	Unit volume		Thread size	Plug part number	
	inch	mm			inch ³ /inch
1.188	30,18	1.108	7,15	1 5/16-12	39TM007A
1.500	38,10	1.767	11,40	1 5/8-12	39TM008A
1.750	44,45	2.405	15,52	1 7/8-12	39TM009A

- Standard manifold Volume hole drilling at 1500 psi - 103 bar and 2000 psi - 138 bar:

Ø Hole	Unit volume		Thread size	Plug part number	1500 psi / 103 bar						2000 psi / 138 bar						
	inch	mm			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
.375	9,53	.110	0,71	7/16-20	39TM001A	.375	9,53	.738	18,75	2.00	51	.37	9,40	.750	19,05	2.00	51
.438	11,13	.151	0,97	1/2-20	39TM002A	.406	10,31	.875	22,22	2.00	51	.41	10,41	.875	22,23	2.00	51
.656	16,60	.338	2,18	3/4-16	39TM003A	.563	14,30	1.219	30,96	2.00	51	.60	15,24	1.219	30,96	2.00	51
.750	19,05	.442	2,85	7/8-14	39TM004A	.625	15,88	1.375	34,93	2.00	51	.69	17,53	1.375	34,93	2.00	51
.938	23,83	.691	4,46	1 1/16-12	39TM005A	.750	19,05	1.656	42,06	2.00	51	.84	21,34	1.656	42,06	2.00	51
1.062	26,97	.886	5,71	1 -3/16-12	39TM006A	.884	22,45	1.813	46,05	2.00	51	.93	23,62	1.813	46,05	2.00	51
1.188	30,18	1.108	7,15	1 5/16-12	39TM007A	.938	23,83	2.000	50,80	2.25	57	1.02	25,91	2.000	50,80	2.25	57
1.500	38,10	1.767	11,40	1 5/8-12	39TM008A	1.062	26,97	2.313	58,75	2.50	64	1.25	31,75	2.375	60,33	2.62	67
1.750	44,45	2.405	15,52	1 7/8-12	39TM009A	1.250	31,75	2.375	60,33	2.75	70	1.43	36,32	2.750	69,85	3.00	76
1.750	44,45	2.405	15,52	M47x2	39TM010A	1.250	31,75	2.375	60,33	3.50	70	1.43	36,32	2.750	69,85	3.00	76
2.375	60,33	4.430	28,58	2 1/2-12	39TM011A	1.563	39,70	3.000	76,20	3.50	89	2.44	61,98	4.500	114,30	3.75	95
2.340	59,44	4.301	27,75	M63x2	39TM012A	1.563	39,70	3.000	76,20	3.50	89	1.89	48,01	3.500	88,90	3.75	95
3.094	78,59	7.518	48,51	M82x2	39TM013A	2.125	53,98	3.750	95,25	4.50	114	3.00	76,20	4.500	114,30	4.88	124
3.750	95,25	11.045	71,26	M100x2	39TM014A	2.500	63,50	4.380	111,25	5.25	133	3.00	76,20	5.375	136,53	6.00	152

15 ton/15000 daN

Calculation example

- Standard manifold volume hole drilling at 2175 psi - 150 bar:

Ø Hole		Linear Area		Thread size	Plug part number	A		B		C	
inch	mm	inch ³	mm ³			inch	mm	inch	mm	inch	mm
3.750	95,25	11,045	71,26	M100x2	39TM014A	3.00	76,2	9.44	239,7	5.91	150



8 Total hole length

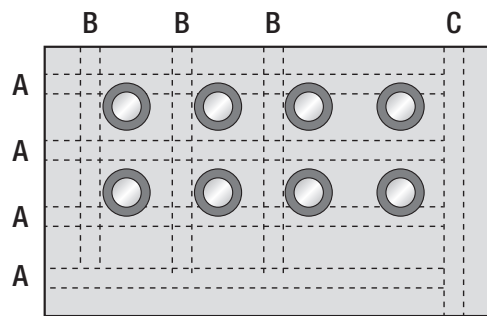
Divide the total volume by the volume per unit of the chosen hole to obtain the minimum overall length of the holes.

$$\frac{\text{Total Volume}}{\text{Volume per Unit}} = \text{Minimum total hole length}$$

Example: $\frac{481 \text{ inch}^3}{1.767 \text{ inch}^3} = 272 \text{ Inch}$

Distribute the Min. Linear Drilling length in the channels necessary for its operation, considering the dimensions of the plate and the positioning of the pockets of the Manifold cylinders.

Ensure that the sum of the length of the holes is bigger than the minimum total hole length.



Example:

For a plate measuring 80 inch x 48 inch x 2.5 inch - 2032 mm x 1219 mm x 63,5 mm, the largest diameter hole is 1.5 inch, the unit volume of drilling is 1.767 inch³.

Length	Q.ty	Linear Driller	Length	Q.ty	Linear Driller
A = 45 Inch	x 4	= 180 inch	A = 1150 mm	x 4	= 4600 mm
B = 25 Inch	x 3	= 75 inch	B = 550 mm	x 3	= 1650 mm
C = 30 Inch	x 1	= 30 inch	C = 750 mm	x 1	= 750 mm
Linear Drilling = 180 + 75 + 30 = 285 inch			Linear Drilling = 4600 + 1650 + 750 = 7.000 mm		

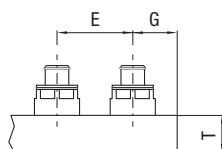
9 Plate thickness

Compare the recommended thickness of the plate according to the chosen hole (tables on page 10) with the thickness recommended for each model of cylinder. If the 2 values are different, we recommend using the bigger thickness. The use of the lower thickness can cause serious safety risks.

- see tables pag. 10

Ø Hole	Volume of drilled hole	Thread size	Plug part number	1500 psi / 103 bar						2000 psi / 138 bar							
				A		B		C		A		B		C			
inch	mm	inch ³	mm ³	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		
1.188	30,18	1.108	7,15	1 5/16-12	39TM007A	.938	23,83	2.000	50,80	2.25	57	1.02	25,91	2.000	50,80	2.25	57
1.500	38,10	1.767	11,40	1 5/8-12	39TM008A	1.062	26,97	2.313	58,75	2.50	64	1.25	31,75	2.375	60,33	2.62	67
1.750	44,45	2.405	15,52	1 7/8-12	39TM009A	1.250	31,75	2.375	60,33	2.75	70	1.43	36,32	2.750	69,85	3.00	76

- see Series pages



PART NUMBER	T* min		T** min	
	inch	mm	inch	mm
CRD 3000 - 1.50 - A	2.24	57,0	2.44	62,0
CRD 3000 - 2.00 - A	2.76	70,0	2.91	74,0
CRD 3000 - 2.50 - A	3.27	83,0	3.43	87,0

Example:

The plate taken as example has different recommended thicknesses, 2.50 inch - 64 mm and 2.76 inch - 70 mm. The value to use is the bigger: 2.76 inch - 70 mm.

T* = 1500 psi / 103 bar T** = 2000 psi / 138 bar

HOW TO READ THE CATALOG

SAMPLE PAGE



.5 ton
.75 ton **CR 750**

2

SW

ACTIVE SAFETY

OSAS

3

P*	E min		G min		T min		
	psi	bar	inch	mm	inch	mm	
1500	103	2.00	51	0.94	24	1.73	44
2000	138	2.00	51	1.02	26	1.89	48

P* = Charging pressure

4

Max Speed
315 ft/min
1,6 m/s

5

32 - 176 °F
0 - 80 °C

6

P max
2000 psi
138 bar

7

P min
363 psi
25 bar

8

S
.761 in²
4,91 cm²

9

PART NUMBER	F ₀ Initial Force		Cu		L		L min		Weight	
	500 daN	750 daN	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CR 750 - 0.25 - A			0.25	6,4	1.16	29,5	0.91	23,1	0.64	0,29
CR 750 - 0.50 - A			0.50	12,7	1.66	42,2	1.16	29,5	0.76	0,35
CR 750 - 0.75 - A			0.75	19,1	2.16	54,9	1.41	35,8	0.89	0,40
CR 750 - 1.00 - A			1.00	25,4	2.66	67,6	1.66	42,2	1.01	0,46
CR 750 - 1.50 - A			1.50	38,1	3.66	93,0	2.16	54,9	1.25	0,57
CR 750 - 2.00 - A			2.00	50,8	4.66	118,4	2.66	67,6	1.48	0,67
CR 750 - 2.50 - A			2.50	63,5	5.66	143,8	3.16	80,3	1.72	0,78
CR 750 - 3.00 - A			3.00	76,2	6.66	169,2	3.66	93,0	1.96	0,89
CR 750 - 3.50 - A			3.50	88,9	7.66	194,6	4.16	105,7	2.20	1,00
CR 750 - 4.00 - A			4.00	101,6	8.66	220,0	4.66	118,4	2.43	1,10

HOW TO ORDER
p. 17

ACCESSORIES
p. 47


SERVICE TOOLS p. 69
Part Number 58UT044A

MAINTENANCE KIT
Part Number 39BMCRO0750A

18 - 021

Special Springs


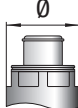
11

1 Cylinder model	2 Secondary Wiper available
3 Safety devices provided on the model	4 Working temperature
5 Suitable fluid	6 Max charging pressure
7 Min charging pressure	8 Rod/piston seal area
9 Cylinder Part Number	10 Initial force at 20°C depends on the charging pressure
11 Page review index	 All dimensions are nominal unless tolerance is stated.

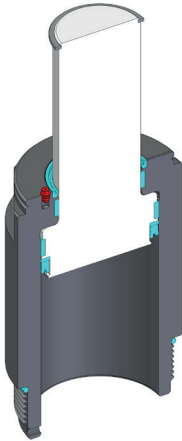


SELECTION TAB



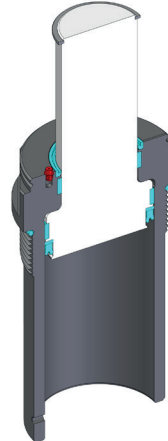
Fo 	Body Diameter 		Thread Size	Model	Charging Pressure
.5 ton 500 daN	1.60 inch 41 mm		1 5/16-12	CR 750 CRD 750	1500 psi /103 bar
.54 ton 540 daN	1.65 inch 42 mm		M 36 X 2	CC 500	1595 psi /110 bar
.75 ton 750 daN	1.60 inch 41 mm		1 5/16-12	CR 750 CRD 750	2000 psi /138 bar
1 ton 1000 daN		2.12 inch 53,8 mm	1 7/8-12	CR 1500 CRD 1500	1500 psi /103 bar
1.06 ton 1060 daN		2.13 inch 54 mm	M 48 X 2	CC 1000 CB 1000	1595 psi /110 bar
1.5 ton 1500 daN		2.12 inch 53,8 mm	1 7/8-12	CR 1500 CRD 1500	2000 psi /138 bar
2.5 ton 2500 daN		2.75 inch 69,9 mm	2 1/2-12	CR 3000 CRD 3000	1500 psi /103 bar
2.52 ton 2520 daN		2.76 inch 70 mm	M 64 X 2	CC 2500 CB 2500 CA 2500	1595 psi /110 bar
3 ton 3000 daN		2.75 inch 69,9 mm	2 1/2-12	CR 3000 CRD 3000	2000 psi /138 bar
4 ton 4000 daN		3.56 inch 90,4 mm	M 82 x 2	CR 5000 CRD 5000	1500 psi /103 bar
4.37 ton 4370 daN		3.56 inch 90,4 mm		CR 5200	1812 psi /125 bar
5 ton 5000 daN		3.56 inch 90,4 mm		CR 5000 CRD 5000	2000 psi /138 bar
5.24 ton 5240 daN		3.56 inch 90,4 mm		CR 5200	2175 psi /150 bar
6 ton 6000 daN		4.31 inch 109,5 mm	M 100 x 2	CR 8000 CRD 8000	1500 psi /103 bar
6.44 ton 6440 daN		4.31 inch 109,5 mm		CR 7700	1812 psi /125 bar
7.73 ton 7730 daN		4.31 inch 109,5 mm		CR 7700	2175 psi /150 bar
8 ton 8000 daN		4.31 inch 109,5 mm		CR 8000 CRD 8000	2000 psi /138 bar
8.91 ton 8910 daN		5.12 inch 130 mm	M 120 x 2	CR 10700	1812 psi /125 bar
10.69 ton 1069 daN		5.12 inch 130 mm		CR 10700	2175 psi /150 bar

CR SERIES



CR 750
CR 1500
CR 3000
CR 5000
CR 8000

This model extends over the surface of the plate and minimizes its thickness.

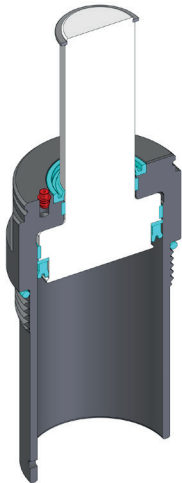


CR 5200
CR 7700
CR 10700

This model extends below the surface of the plate, reducing the footprint of the cylinder above the surface.



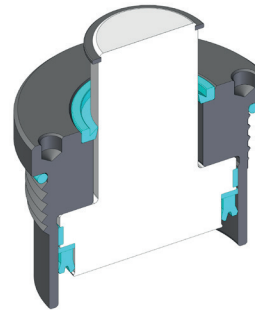
CRD SERIES



CRD 750
CRD 1500
CRD 3000
CRD 5000
CRD 8000

This model extends below the surface of the plate, reducing the footprint of the cylinder above the surface.

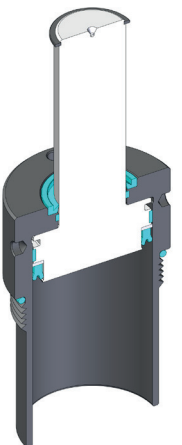
CA SERIES



CA 2500

This model extends completely below the surface of the plate, minimizing the footprint of the cylinder above the surface. It is recommended for applications where space is limited.

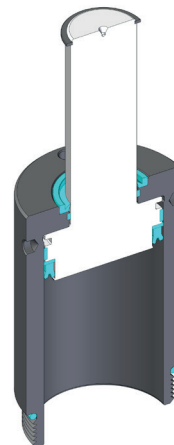
CB SERIES



CB 1000
CB 2500

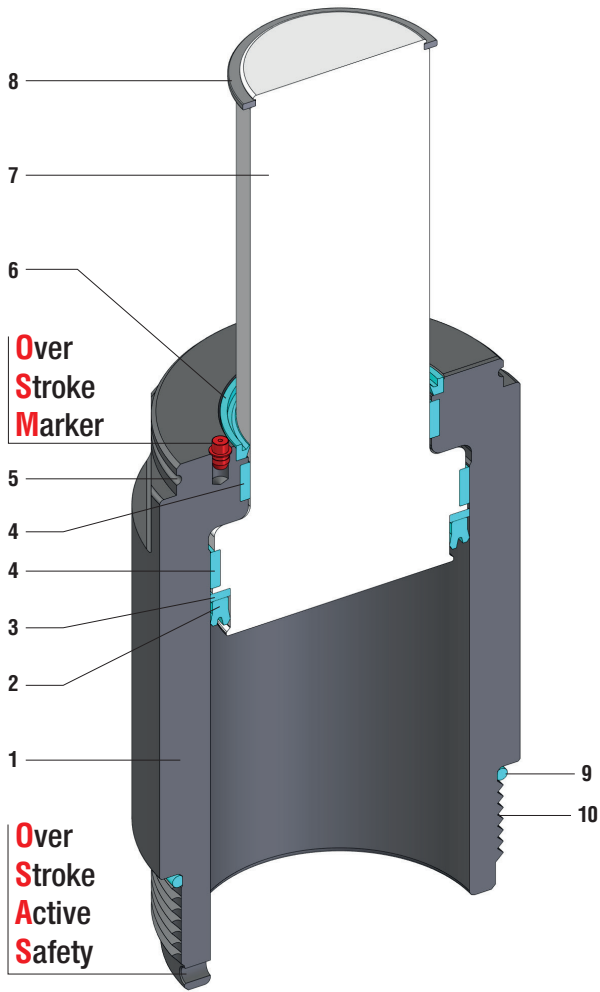
This model extends below the surface of the plate, reducing the footprint of the cylinder above the surface.

CC SERIES

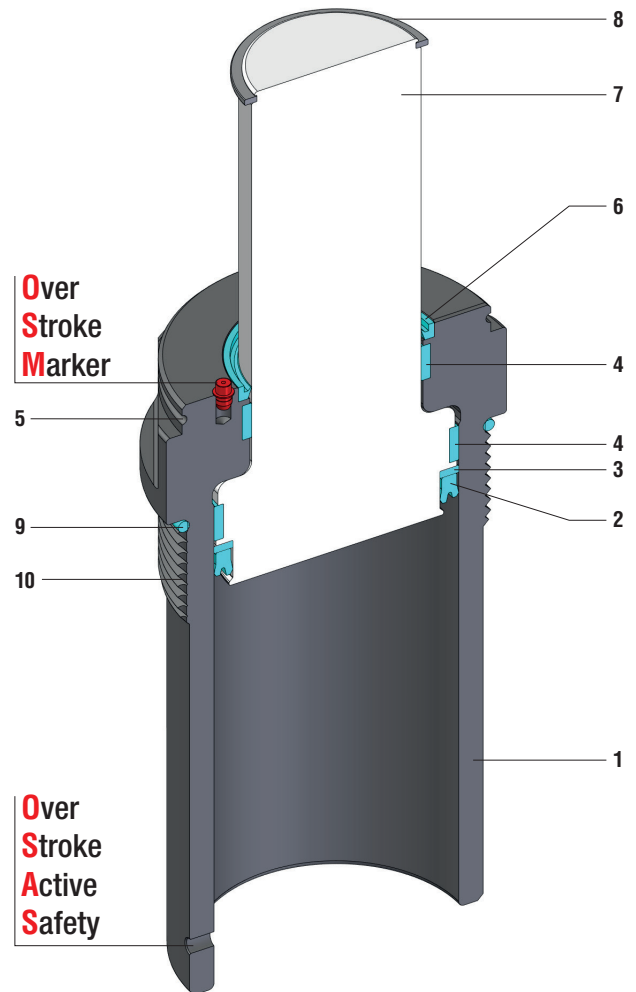


CC 500
CC 1000
CC 2500

This model extends over the surface of the plate and minimizes its thickness.



CR 750 - CR 1500
CR 3000 - CR 5000
CR 8000





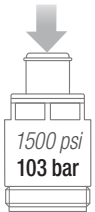
CR 5200
CR 7700
CR 10700

SEALING	PISTON SEAL
DESIGN	PISTON - BODY DESIGN


1	Body	5	Groove for secondary wiper	9	O-ring
2	Rod seal	6	Rod wiper	10	Thread
3	Back-up ring	7	Rod (nitrited superfinished)		
4	Guide ring	8	Seeger ring		

RANGE CHART

Model	Body Ø		Stroke Cu		Initial Force F0				Thread	 OSAS	 SW
	inch	mm	inch	mm	ton	daN	ton	daN			
CR 750	1.60	40,6	0.25 - 4.00	6,4 - 101,6	0.50	500	0.75	750	1 5/16-12	✓	✓
CR 1500	2.12	53,8	0.50 - 5.00	12,7 - 127	1.00	1000	1.50	1500	1 7/8-12	✓	✓
CR 3000	2.75	69,9	0.50 - 6.00	12,7 - 152,4	2.50	2500	3.00	3000	2 1/2-12	✓	✓
CR 5000	3.56	90,4	0.50 - 7.00	12,7 - 177,8	4.00	4000	5.00	5000	M 82 x 2	✓	✓
CR 8000	4.31	109,5	0.50 - 8.00	12,7 - 203,2	6.00	6000	8.00	8000	M 100 x 2	✓	✓





1500 psi
103 bar

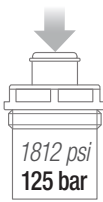


2000 psi
138 bar


- ✓ Built-in as standard
- ✓ Optional upon request

CR

Model	Body Ø		Stroke Cu		Initial Force F0				Thread	 OSAS	 SW
	inch	mm	inch	mm	ton	daN	ton	daN			
CR 5200	3.56	90,4	3.94 - 7.87	100 - 200	4.37	4370	5.24	5240	M 82 x 2	✓	✓
CR 7700	4.31	109,5	3.94 - 9.84	100 - 250	6.44	6440	7.73	7730	M 100 x 2	✓	✓
CR 10700	5.12	130,0	3.94 - 9.84	100 - 250	8.91	8910	10.69	10690	M 120 x 2	✓	✓



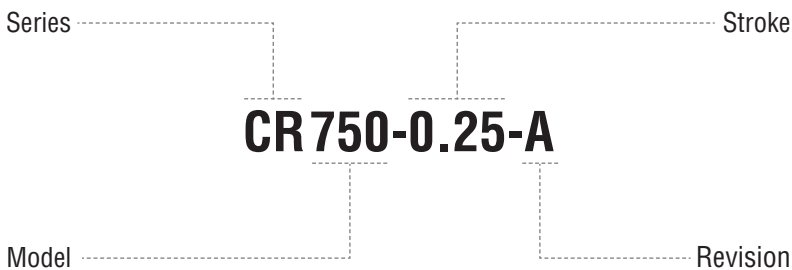
1812 psi
125 bar



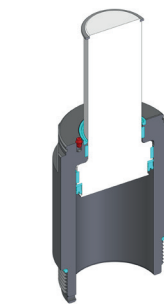
2175 psi
150 bar

- ✓ Built-in as standard
- ✓ Optional upon request

HOW TO ORDER



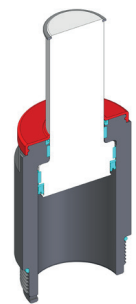
Available versions



CR 750-0.25-A
Standard Part Number



Manifold



CR 750-0.25-A-W
Add "-W" to standard Part Number



Manifold



+
Secondary wiper

.5 ton
.75 ton

CR 750

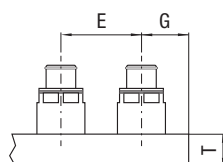
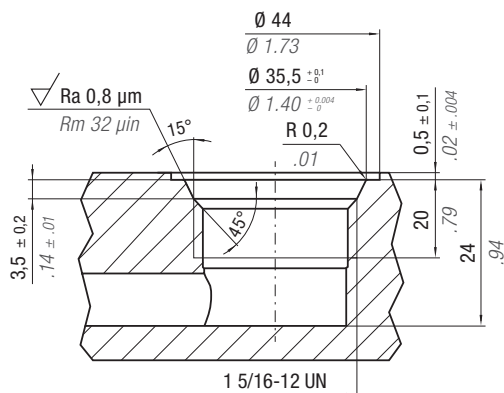


SW

ACTIVE SAFETY

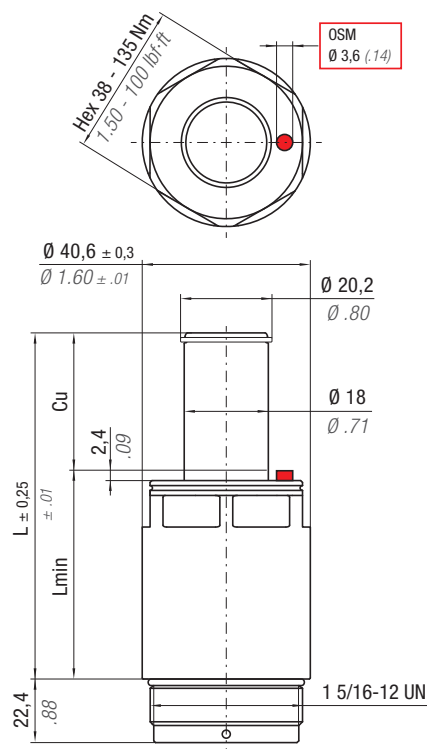


OSAS



P*		E min		G min		T min	
psi	bar	inch	mm	inch	mm	inch	mm
1500	103	2.00	51	0.94	24	1.73	44
2000	138	2.00	51	1.02	26	1.89	48

P* = Charging pressure



Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 2000 psi 138 bar	P min 363 psi 25 bar	S .761 in ² 4,91 cm ²	
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PART NUMBER	F ₀ Initial Force		Cu		L		L min			
	.5 ton 500 daN	.75 ton 750 daN	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CR 750 - 0.25 - A			0.25	6,4	1.16	29,5	0.91	23,1	0.64	0,29
CR 750 - 0.50 - A			0.50	12,7	1.66	42,2	1.16	29,5	0.76	0,35
CR 750 - 0.75 - A			0.75	19,1	2.16	54,9	1.41	35,8	0.89	0,40
CR 750 - 1.00 - A			1.00	25,4	2.66	67,6	1.66	42,2	1.01	0,46
CR 750 - 1.50 - A			1.50	38,1	3.66	93,0	2.16	54,9	1.25	0,57
CR 750 - 2.00 - A			2.00	50,8	4.66	118,4	2.66	67,6	1.48	0,67
CR 750 - 2.50 - A			2.50	63,5	5.66	143,8	3.16	80,3	1.72	0,78
CR 750 - 3.00 - A			3.00	76,2	6.66	169,2	3.66	93,0	1.96	0,89
CR 750 - 3.50 - A			3.50	88,9	7.66	194,6	4.16	105,7	2.20	1,00
CR 750 - 4.00 - A			4.00	101,6	8.66	220,0	4.66	118,4	2.43	1,10



HOW TO ORDER

p. 17



ACCESSORIES

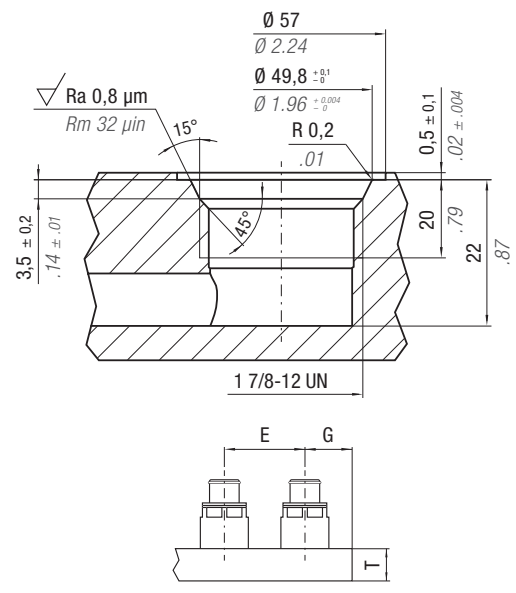
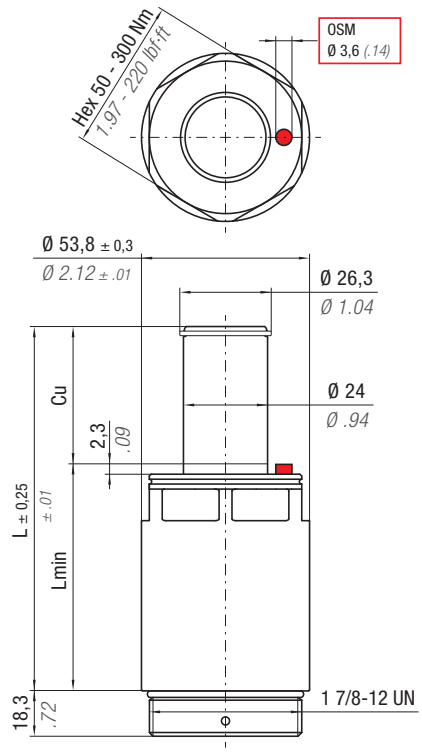
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SERVICE TOOLS p. 69

Part Number 58UT044A

MAINTENANCE KIT

Part Number 39BMC00750A



P*	E min		G min		Tmin		
	psi	bar	inch	mm	inch	mm	
1500	103	2.38	60	1.25	32	1.73	44
2000	138	2.75	70	1.43	37	1.93	49

P* = Charging pressure



CR

Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 2000 psi 138 bar	P min 363 psi 25 bar	S 1.491 in ² 9,62 cm ²	
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PART NUMBER	F ₀ Initial Force		Cu		L		L min			
	1 ton 1000 daN	1.5 ton 1500 daN	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CR 1500 - 0.50 - A			0.50	12,7	1.91	48,5	1.41	35,8	1.58	0,72
CR 1500 - 0.75 - A			0.75	19,0	2.41	61,2	1.66	42,2	1.77	0,80
CR 1500 - 1.00 - A			1.00	25,4	2.91	73,9	1.91	48,5	2.00	0,91
CR 1500 - 1.50 - A			1.50	38,1	3.91	99,3	2.41	61,2	2.35	1,07
CR 1500 - 2.00 - A			2.00	50,8	4.91	124,7	2.91	73,9	2.75	1,25
CR 1500 - 2.50 - A			2.50	63,5	5.91	150,1	3.41	86,6	3.15	1,43
CR 1500 - 3.00 - A			3.00	76,2	6.91	175,5	3.91	99,3	3.53	1,60
CR 1500 - 3.50 - A			3.50	88,9	7.91	200,9	4.41	112,0	3.93	1,78
CR 1500 - 4.00 - A			4.00	101,6	8.91	226,3	4.91	124,7	4.32	1,96
CR 1500 - 4.50 - A			4.50	114,3	9.91	251,7	5.41	137,4	4.70	2,13
CR 1500 - 5.00 - A			5.00	127,0	10.91	277,1	5.91	150,1	5.10	2,31

HOW TO ORDER p. 17	ACCESSORIES p. 47	SERVICE TOOLS p. 69 Part Number 58UT045A	MAINTENANCE KIT Part Number 39BMCR01500A
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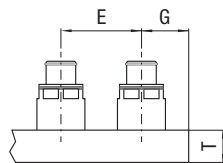
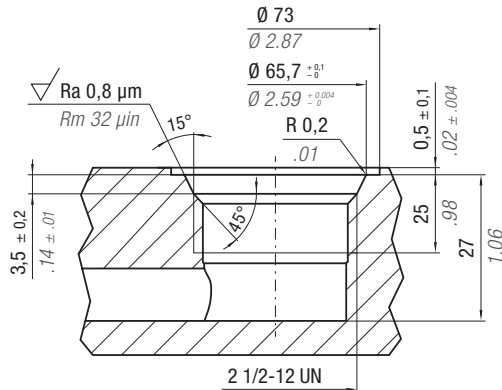


SW

ACTIVE SAFETY

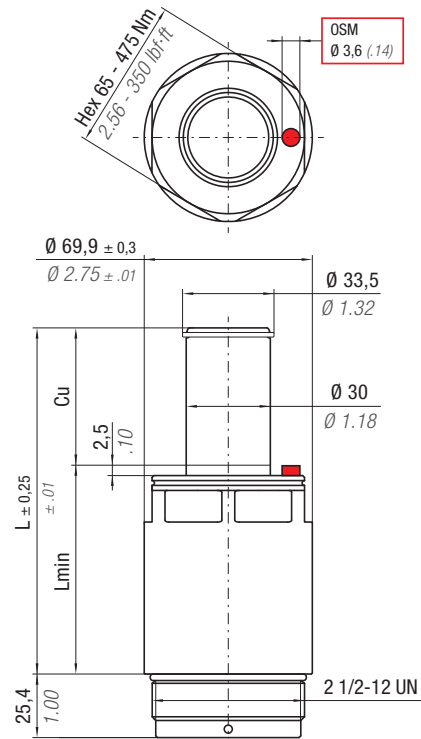


OSAS



P*		E min		G min		Tmin	
psi	bar	inch	mm	inch	mm	inch	mm
1500	103	3.00	76	1.56	40	2.01	51
2000	138	3.50	89	1.89	48	2.17	55

P* = Charging pressure



Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 2000 psi 138 bar	P min 363 psi 25 bar	S 3.55 in ² 22,90 cm ²	
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PART NUMBER	F ₀ Initial Force		Cu		L		L min			
	2.5 ton 2500 daN	3 ton 3000 daN	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CR 3000 - 0.50 - A			0.50	12,7	1.91	48,5	1.41	35,8	2.63	1,19
CR 3000 - 0.75 - A			0.75	19,0	2.41	61,2	1.66	42,2	2.88	1,31
CR 3000 - 1.00 - A			1.00	25,4	2.91	73,9	1.91	48,5	3.14	1,42
CR 3000 - 1.50 - A			1.50	38,1	3.91	99,3	2.41	61,2	3.62	1,64
CR 3000 - 2.00 - A			2.00	50,8	4.91	124,7	2.91	73,9	4.13	1,87
CR 3000 - 2.50 - A			2.50	63,5	5.91	150,1	3.41	86,6	4.63	2,10
CR 3000 - 3.00 - A			3.00	76,2	6.91	175,5	3.91	99,3	5.12	2,32
CR 3000 - 3.50 - A			3.50	88,9	7.91	200,9	4.41	112,0	5.62	2,55
CR 3000 - 4.00 - A			4.00	101,6	8.91	226,3	4.91	124,7	6.12	2,78
CR 3000 - 4.50 - A			4.50	114,3	9.91	251,7	5.41	137,4	6.61	3,00
CR 3000 - 5.00 - A			5.00	127,0	10.91	277,1	5.91	150,1	7.11	3,23
CR 3000 - 5.50 - A			5.50	139,7	11.91	302,5	6.41	162,8	7.62	3,46
CR 3000 - 6.00 - A			6.00	152,4	12.91	327,9	6.91	175,5	8.12	3,68



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ACCESSORIES

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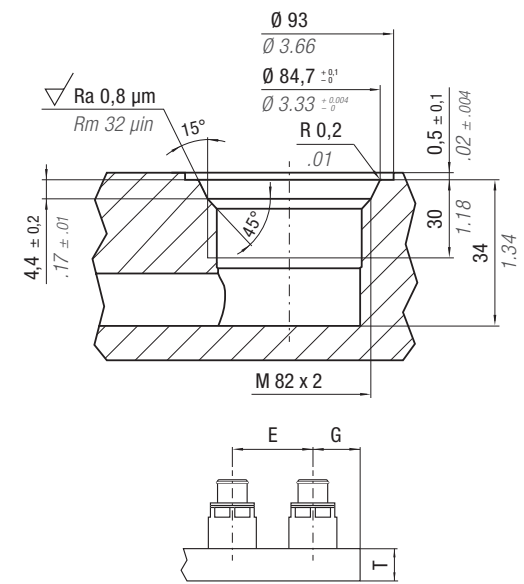
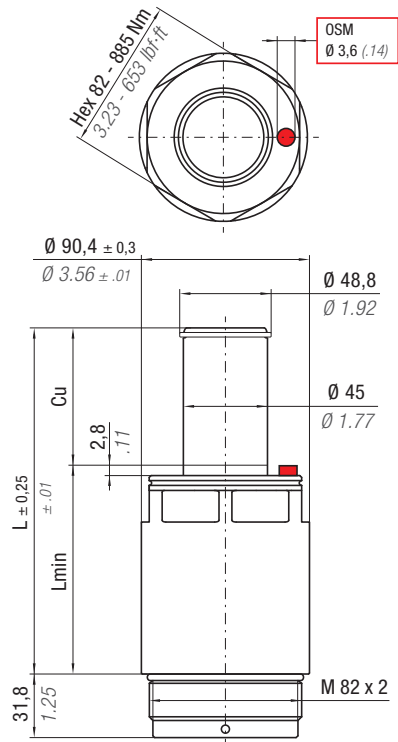
SERVICE TOOLS

p. 69

Part Number 58UT046A

MAINTENANCE KIT

Part Number 39BMCRO3000A



P*	E min		G min		Tmin		
	psi	bar	inch	mm	inch	mm	
1500	103	3.75	95	2.13	54	2.01	51
2000	138	4.50	115	2.44	62	2.24	57

P* = Charging pressure



CR

Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N2	P max 2000 psi 138 bar	P min 363 psi 25 bar	S 5.14 in ² 33,18 cm ²	
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PART NUMBER	F0 Initial Force		Cu		L		L min			
	4 ton 4000 daN	5 ton 5000 daN	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CR 5000 - 0.50 - A			0.50	12,7	1.91	48,5	1.41	35,8	5.50	2,49
CR 5000 - 0.75 - A			0.75	19,0	2.41	61,2	1.66	42,2	6.01	2,72
CR 5000 - 1.00 - A			1.00	25,4	2.91	73,9	1.91	48,5	6.54	2,97
CR 5000 - 1.50 - A			1.50	38,1	3.91	99,3	2.41	61,2	7.53	3,42
CR 5000 - 2.00 - A			2.00	50,8	4.91	124,7	2.91	73,9	8.57	3,89
CR 5000 - 2.50 - A			2.50	63,5	5.91	150,1	3.41	86,6	9.59	4,35
CR 5000 - 3.00 - A			3.00	76,2	6.91	175,5	3.91	99,3	10.60	4,81
CR 5000 - 3.50 - A			3.50	88,9	7.91	200,9	4.41	112,0	11.62	5,27
CR 5000 - 4.00 - A			4.00	101,6	8.91	226,3	4.91	124,7	12.63	5,73
CR 5000 - 4.50 - A			4.50	114,3	9.91	251,7	5.41	137,4	13.65	6,19
CR 5000 - 5.00 - A			5.00	127,0	10.91	277,1	5.91	150,1	14.67	6,65
CR 5000 - 5.50 - A			5.50	139,7	11.91	302,5	6.41	162,8	15.71	7,13
CR 5000 - 6.00 - A			6.00	152,4	12.91	327,9	6.91	175,5	16.72	7,59
CR 5000 - 6.50 - A			6.50	165,1	13.91	353,3	7.41	188,2	17.71	8,04
CR 5000 - 7.00 - A			7.00	177,8	14.91	378,7	7.91	200,9	18.76	8,51

HOW TO ORDER p. 17	ACCESSORIES p. 47	SERVICE TOOLS p. 69 Part Number 58UT047A	MAINTENANCE KIT Part Number 39BMCR05000A
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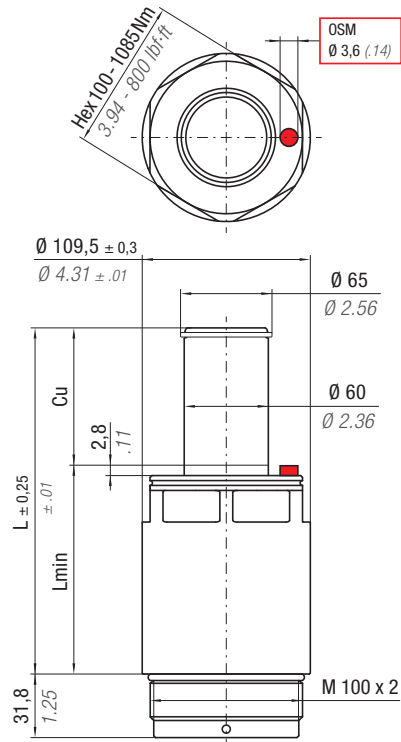
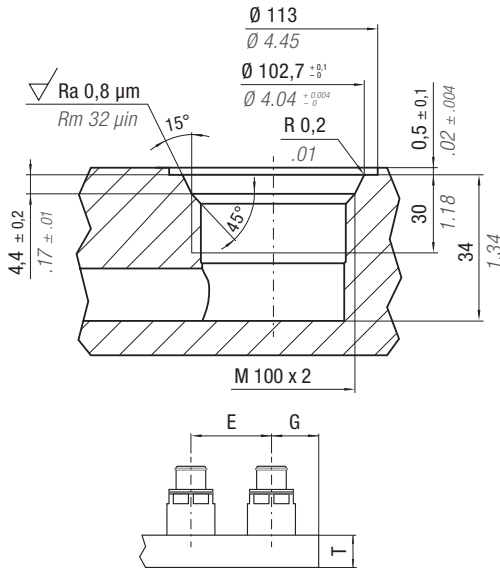


SW

ACTIVE SAFETY



OSAS



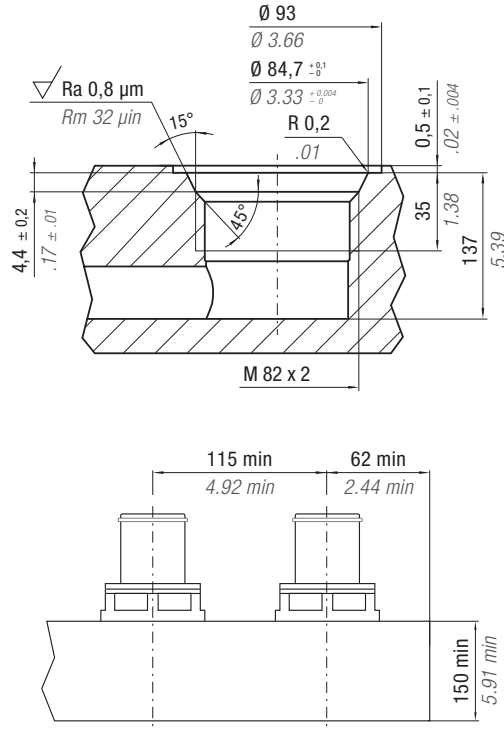
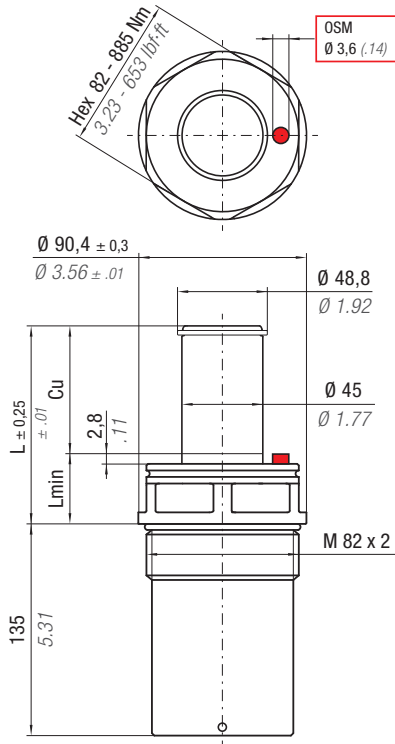
P*		E min		G min		Tmin	
psi	bar	inch	mm	inch	mm	inch	mm
1500	103	4.45	114	2.50	64	2.52	64
2000	138	5.38	137	3.00	77	2.87	73

P* = Charging pressure

Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 2000 psi 138 bar	P min 363 psi 25 bar	S 7.79 in ² 50,27 cm ²	
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PART NUMBER	F ₀ Initial Force	Cu		L		L min			
		inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CR 8000 - 0.50 - A	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>6 ton 6000 daN</p> <p>1500 psi 103 bar</p> </div> <div style="text-align: center;"> <p>8 ton 8000 daN</p> <p>2000 psi 138 bar</p> </div> </div>	0.50	12,7	1.91	48,5	1.41	35,8	8.32	3,77
CR 8000 - 0.75 - A		0.75	19,0	2.41	61,2	1.66	42,1	9.07	4,11
CR 8000 - 1.00 - A		1.00	25,4	2.91	73,9	1.91	48,5	9.89	4,48
CR 8000 - 1.50 - A		1.50	38,1	3.91	99,3	2.41	61,2	11.42	5,18
CR 8000 - 2.00 - A		2.00	50,8	4.91	124,7	2.91	73,9	13.01	5,90
CR 8000 - 2.50 - A		2.50	63,5	5.91	150,1	3.41	86,6	14.55	6,60
CR 8000 - 3.00 - A		3.00	76,2	6.91	175,5	3.91	99,3	16.18	7,34
CR 8000 - 3.50 - A		3.50	88,9	7.91	200,9	4.41	112,0	17.71	8,03
CR 8000 - 4.00 - A		4.00	101,6	8.91	226,3	4.91	124,7	19.24	8,73
CR 8000 - 4.50 - A		4.50	114,3	9.91	251,7	5.41	137,4	20.87	9,47
CR 8000 - 5.00 - A		5.00	127,0	10.91	277,1	5.91	150,1	22.40	10,16
CR 8000 - 5.50 - A		5.50	139,7	11.91	302,5	6.41	162,8	24.01	10,89
CR 8000 - 6.00 - A		6.00	152,4	12.91	327,9	6.91	175,5	25.56	11,59
CR 8000 - 6.50 - A		6.50	165,1	13.91	353,3	7.41	188,2	27.09	12,29
CR 8000 - 7.00 - A		7.00	177,8	14.91	378,7	7.91	200,9	28.70	13,02
CR 8000 - 7.50 - A		7.50	190,5	15.91	404,1	8.41	213,6	30.23	13,71
CR 8000 - 8.00 - A	8.00	203,2	16.91	429,5	8.91	226,3	31.86	14,45	

HOW TO ORDER p. 17	ACCESSORIES p. 47	SERVICE TOOLS p. 69 Part Number 58UT048A	MAINTENANCE KIT Part Number 39BMCRO8000A
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ACTIVE SAFETY



CR

Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N2	P max 2175 psi 150 bar	P min 363 psi 25 bar	S 5.143 in ² 33,18 cm ²	
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PART NUMBER	F0 Initial Force		Cu		L		L min			
	inch	mm	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CR 5200 - 100 - A	4.37 ton - 4370 daN	5.24 ton - 5240 daN	3.94	100	5.31	135	1.38	35	11.20	5,08
CR 5200 - 125 - A	1813 psi 125 bar	2175 psi 150 bar	4.92	125	7.28	185	2.36	60	13.21	5,99
CR 5200 - 160 - A			6.30	160	10.04	255	3.74	95	16.01	7,26
CR 5200 - 200 - A			7.87	200	13.19	335	5.31	135	19.22	8,72

HOW TO ORDER p. 17	ACCESSORIES p. 47	SERVICE TOOLS p. 69 Part Number 58UT047A	MAINTENANCE KIT Part Number 39BMCR05000A
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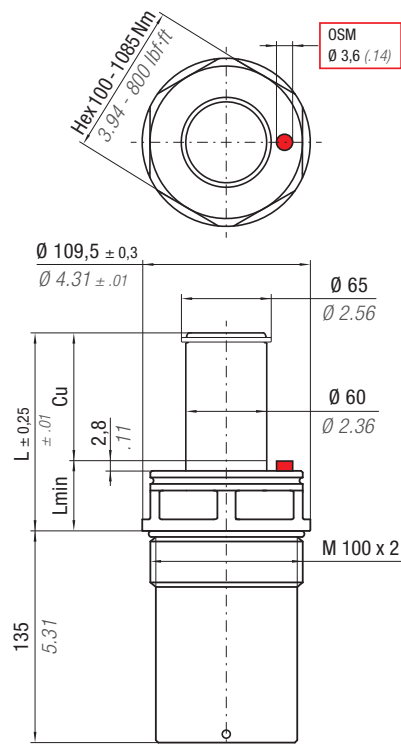
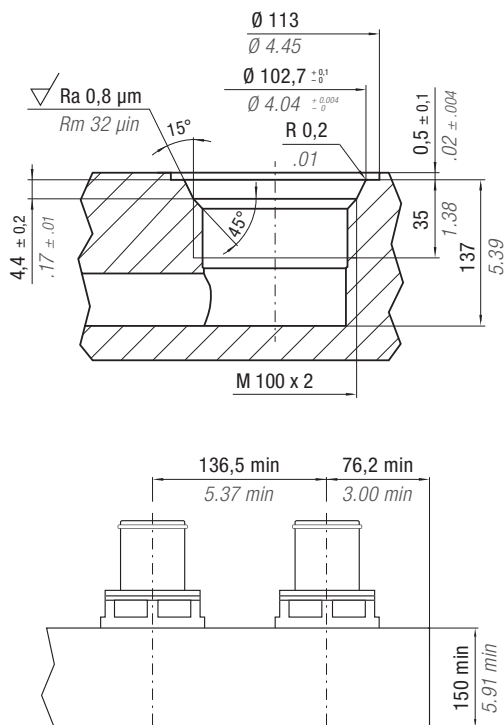


SW

ACTIVE SAFETY



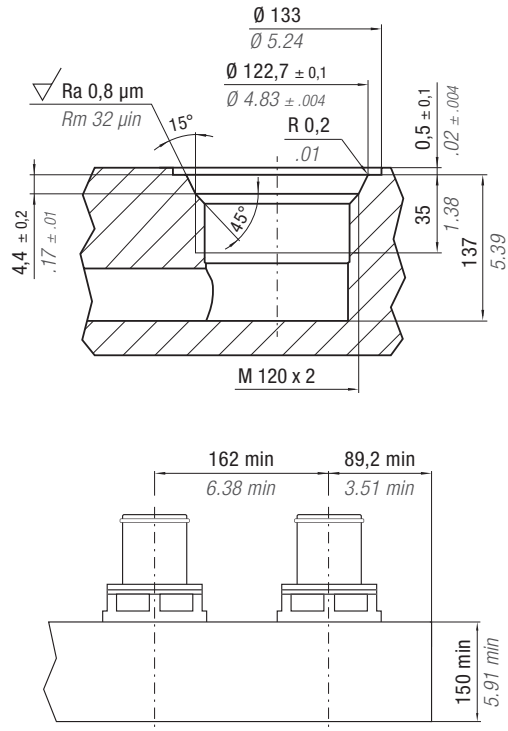
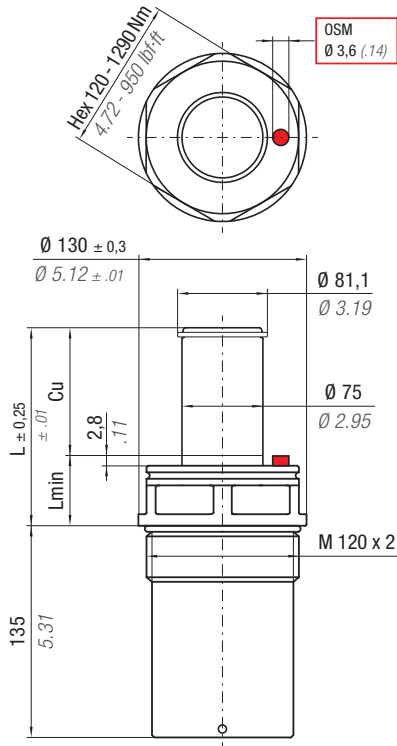
OSAS



Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 2175 psi 150 bar	P min 363 psi 25 bar	S 7.791 in ² 50,26 cm ²	HX CAD
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PART NUMBER	F ₀ Initial Force		Cu		L		L min			
	inch	mm	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CR 7700 - 100 - A	6.44 ton - 6440 daN	7.73 ton - 7730 daN	3.94	100	5.31	135	1.38	35	17.41	7.90
CR 7700 - 125 - A	1813 psi 125 bar	2175 psi 150 bar	4.92	125	7.28	185	2.36	60	20.50	9.30
CR 7700 - 160 - A			6.30	160	10.04	255	3.74	95	24.82	11,26
CR 7700 - 200 - A			7.87	200	13.19	335	5.31	135	29.76	13,50
CR 7700 - 250 - A			9.84	250	17.13	435	7.28	185	35.93	16,30

HOW TO ORDER p. 17	ACCESSORIES p. 47	SERVICE TOOLS p. 69 Part Number 58UT048A	MAINTENANCE KIT Part Number 39BMCR08000A
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ACTIVE SAFETY



CR

Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 2175 psi 150 bar	P min 363 psi 25 bar	S 10.987 in ² 70,88 cm ²	
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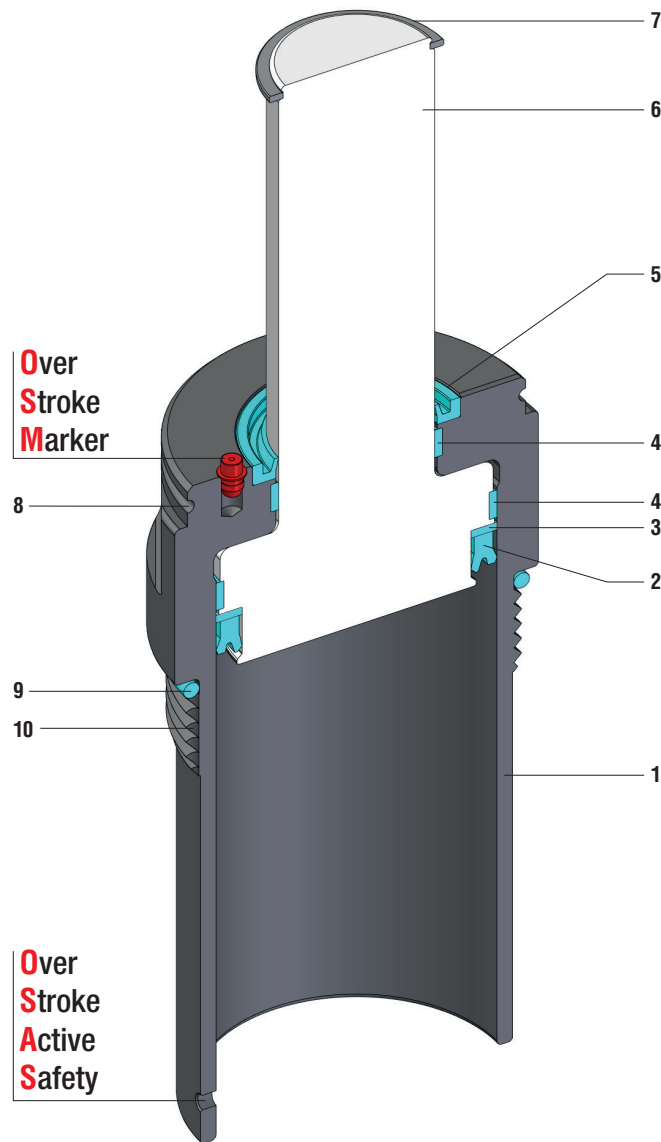
PART NUMBER	F ₀ Initial Force		Cu		L		L min			
	inch	mm	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CR 10700 - 100 - A	8.91 ton - 8910 daN	10.69 ton - 10690 daN	3.94	100	5.31	135	1.38	35	25.13	11,40
CR 10700 - 125 - A			4.92	125	7.28	185	2.36	60	30.98	14,05
CR 10700 - 160 - A			6.30	160	10.04	255	3.74	95	39.61	17,97
CR 10700 - 200 - A	 1813 psi 125 bar	 2175 psi 150 bar	7.87	200	13.19	335	5.31	135	44.74	20,29
CR 10700 - 250 - A			9.84	250	17.13	435	7.28	185	53.92	24,46

HOW TO ORDER
 p. 17

ACCESSORIES
 p. 47

SERVICE TOOLS p. 69
Part Number 58UT049A

MAINTENANCE KIT
Part Number 39BMCR10700A



SEALING	PISTON SEAL
DESIGN	PISTON - BODY DESIGN

1	Body	5	Rod wiper	9	O-ring
2	Rod seal	6	Rod (nitrited superfinished)	10	Thread
3	Back-up ring	7	Seeger ring		
4	Guide ring	8	Groove for secondary wiper		

RANGE CHART

Model	Body Ø		Stroke Cu		Initial Force F0				Thread	OSAS SW
	inch	mm	inch	mm	ton	daN	ton	daN		
CRD 750	1.60	40,6	0.25 - 4.00	6,4 - 101,6	0.50	500	0.75	750	1 5/16-12	<input checked="" type="checkbox"/> Built-in as standard <input checked="" type="checkbox"/> Optional upon request
CRD 1500	2.12	53,8	1.00 - 5.00	25,4 - 127,0	1.00	1000	1.50	1500	1 7/8-12	
CRD 3000	2.75	69,9	1.00 - 6.00	25,4 - 152,4	2.50	2500	3.00	3000	2 1/2-12	
CRD 5000	3.56	90,4	1.00 - 7.00	25,4 - 177,8	4.00	4000	5.00	5000	M 82 x 2	
CRD 8000	4.31	109,5	1.00 - 8.00	25,4 - 203,2	6.00	6000	8.00	8000	M 100 x 2	

1500 psi
103 bar

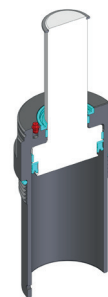
2000 psi
138 bar

CRD

HOW TO ORDER



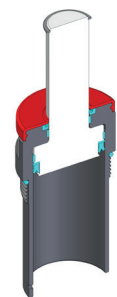
Available versions



CRD 750-0.25-A
Standard Part Number



Manifold



CRD 750-0.25-A-W
Add "-W" to standard Part Number



Manifold



+
Secondary wiper

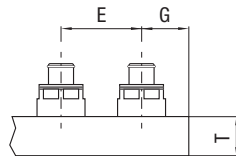
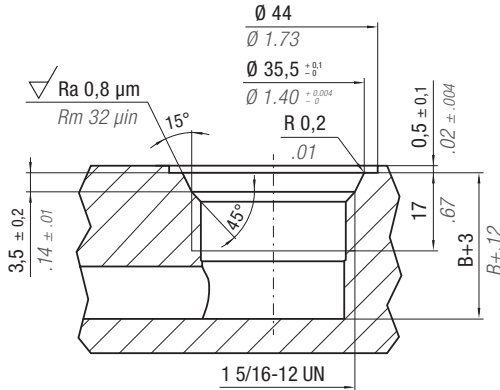


SW

ACTIVE SAFETY

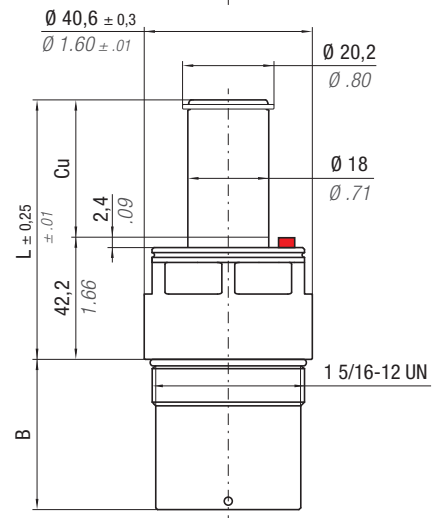
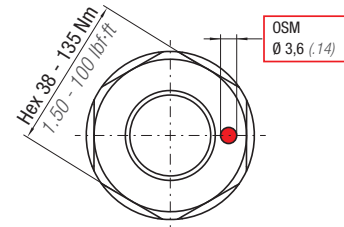


OSAS



P*	E min		G min		
	psi	bar	inch	mm	inch
1500	103	4.45	114	2.50	64
2000	138	5.38	137	3.00	77

P* = Charging pressure



Max Speed 315 ft/min 1.6 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 2000 psi 138 bar	P min 363 psi 25 bar	S .761 in ² 4.91 cm ²	
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PART NUMBER	F ₀ Initial Force		C _u		L		B		T* _{min}		T** _{min}		Weight	
	.5 ton 500 daN	.75 ton 750 daN	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CRD 750 - 0.25 - A			0.25	6,4	1.91	48,5	0.59	15,0	1.73	44,0	1.89	48,0	0.85	0,39
CRD 750 - 0.50 - A			0.50	12,7	2.16	54,8	0.59	15,0	1.73	44,0	1.89	48,0	0.88	0,40
CRD 750 - 0.75 - A			0.75	19,1	2.41	61,2	0.63	16,0	1.73	44,0	1.89	48,0	0.91	0,41
CRD 750 - 1.00 - A			1.00	25,4	2.66	67,6	0.88	22,4	1.73	44,0	1.89	48,0	0.96	0,44
CRD 750 - 1.50 - A			1.50	38,1	3.16	80,3	1.38	35,1	1.81	46,0	1.93	49,0	1.07	0,48
CRD 750 - 2.00 - A			2.00	50,8	3.66	93,0	1.88	47,8	2.32	59,0	2.44	62,0	1.17	0,53
CRD 750 - 2.50 - A			2.50	63,5	4.16	105,7	2.38	60,5	2.80	71,0	2.95	75,0	1.27	0,58
CRD 750 - 3.00 - A			3.00	76,2	4.66	118,4	2.88	73,2	3.31	84,0	3.43	87,0	1.38	0,63
CRD 750 - 3.50 - A			3.50	88,9	5.16	131,1	3.38	85,9	3.82	97,0	3.94	100,0	1.48	0,67
CRD 750 - 4.00 - A			4.00	101,6	5.66	143,8	3.88	98,6	4.29	109,0	4.45	113,0	1.59	0,72

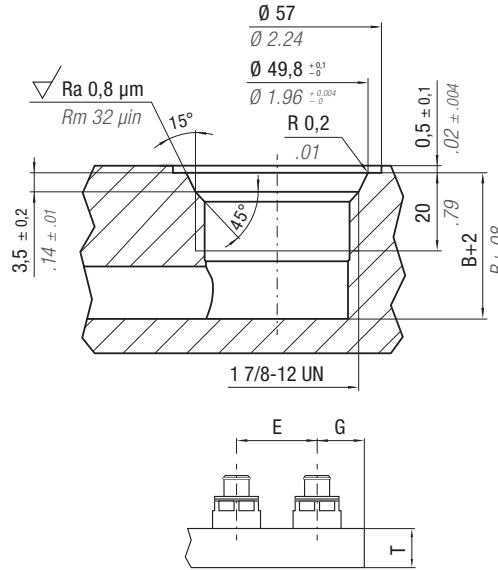
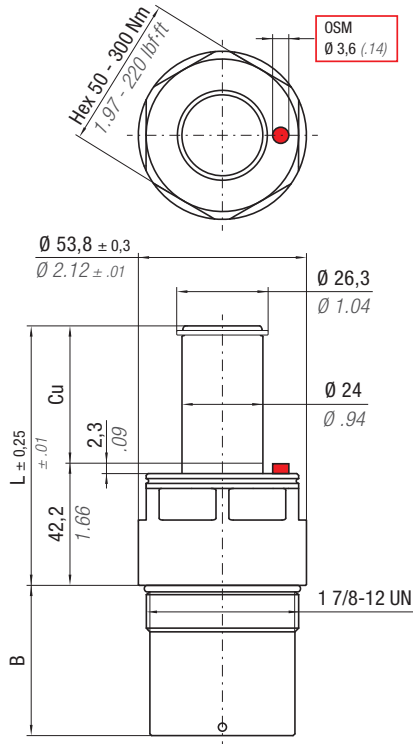
T* = 1500 psi/103 bar T** = 2000 psi/138 bar

HOW TO ORDER
p. 27

ACCESSORIES
p. 47

SERVICE TOOLS p. 69
Part Number 58UT044A

MAINTENANCE KIT
Part Number 39BMCRO0750A



P*		E min		G min	
psi	bar	inch	mm	inch	mm
1500	103	2.38	60	1.25	32
2000	138	2.75	70	1.43	37

P* = Charging pressure



ACTIVE SAFETY



CRD

Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 2000 psi 138 bar	P min 363 psi 25 bar	S 1.491 in ² 9,62 cm ²	
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PART NUMBER	Fo Initial Force		Cu		L		B		T*min		T**min			
	1 ton 1000 daN	1.5 ton 1500 daN	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CRD 1500 - 1.00 - A			1.00	25,4	2.66	67,6	0.97	24,6	1.73	44,0	1.93	49,0	1.82	0,83
CRD 1500 - 1.50 - A			1.50	38,1	3.16	80,3	1.47	37,3	1.89	48,0	2.09	53,0	2.05	0,93
CRD 1500 - 2.00 - A			2.00	50,8	3.66	93,0	1.97	50,0	2.36	60,0	2.56	65,0	2.28	1,03
CRD 1500 - 2.50 - A			2.50	63,5	4.16	105,7	2.47	62,7	2.87	73,0	3.07	78,0	2.51	1,14
CRD 1500 - 3.00 - A			3.00	76,2	4.66	118,4	2.97	75,4	3.39	86,0	3.58	91,0	2.74	1,24
CRD 1500 - 3.50 - A			3.50	88,9	5.16	131,1	3.47	88,1	3.86	98,0	4.06	103,0	2.97	1,35
CRD 1500 - 4.00 - A			4.00	101,6	5.66	143,8	3.97	100,8	4.37	111,0	4.57	116,0	3.20	1,45
CRD 1500 - 4.50 - A			4.50	114,3	6.16	156,5	4.47	113,5	4.88	124,0	5.08	129,0	3.43	1,56
CRD 1500 - 5.00 - A			5.00	127,0	6.66	169,2	4.97	126,2	5.39	137,0	5.55	141,0	3.66	1,66

T* = 1500 psi/103 bar T** = 2000 psi/138 bar

HOW TO ORDER p. 27	ACCESSORIES p. 47	SERVICE TOOLS p. 69 Part Number 58UT045A	MAINTENANCE KIT Part Number 39BMCR01500A
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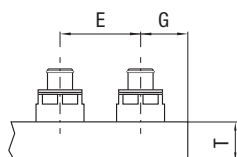
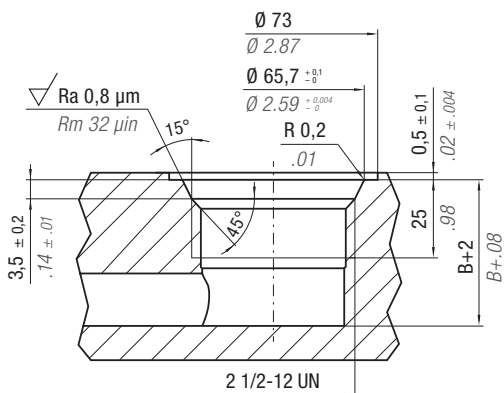


SW

ACTIVE SAFETY

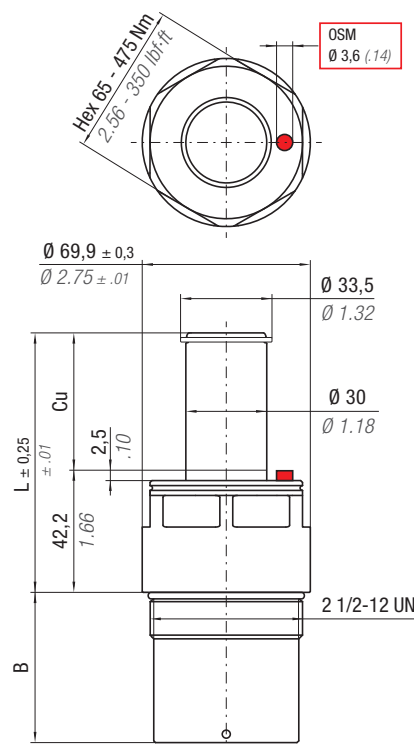


OSAS



P*	E min		G min		
	psi	bar	inch	mm	inch
1500	103	3.00	76	1.56	40
2000	138	3.50	89	1.89	48

P* = Charging pressure



Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 2000 psi 138 bar	P min 363 psi 25 bar	S 3.55 in ² 22,90 cm ²	
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PART NUMBER	F ₀ Initial Force		C _u		L		B		T* min		T** min			
	2.5 ton 2500 daN	3 ton 3000 daN	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CRD 3000 - 1.00 - A			1.00	25,4	2.66	67,6	1.25	31,8	2.01	51,0	2.17	55,0	2.97	1,35
CRD 3000 - 1.50 - A			1.50	38,1	3.16	80,3	1.75	44,5	2.24	57,0	2.44	62,0	3.25	1,47
CRD 3000 - 2.00 - A			2.00	50,8	3.66	93,0	2.25	57,2	2.76	70,0	2.91	74,0	3.52	1,60
CRD 3000 - 2.50 - A			2.50	63,5	4.16	105,7	2.75	69,9	3.27	83,0	3.43	87,0	3.79	1,72
CRD 3000 - 3.00 - A			3.00	76,2	4.66	118,4	3.25	82,6	3.74	95,0	3.94	100,0	4.07	1,85
CRD 3000 - 3.50 - A			3.50	88,9	5.16	131,1	3.75	95,3	4.25	108,0	4.45	113,0	4.34	1,97
CRD 3000 - 4.00 - A			4.00	101,6	5.66	143,8	4.25	108,0	4.72	120,0	4.92	125,0	4.61	2,09
CRD 3000 - 4.50 - A			4.50	114,3	6.16	156,5	4.75	120,7	5.24	133,0	5.43	138,0	4.89	2,22
CRD 3000 - 5.00 - A			5.00	127,0	6.66	169,2	5.25	133,4	5.75	146,0	5.94	151,0	5.16	2,34
CRD 3000 - 5.50 - A			5.50	139,7	7.16	181,9	5.75	146,1	6.26	159,0	6.43	163,0	5.44	2,47
CRD 3000 - 6.00 - A	6.00	152,4	7.66	194,6	6.25	158,8	6.73	171,0	6.93	176,0	5.71	2,59		

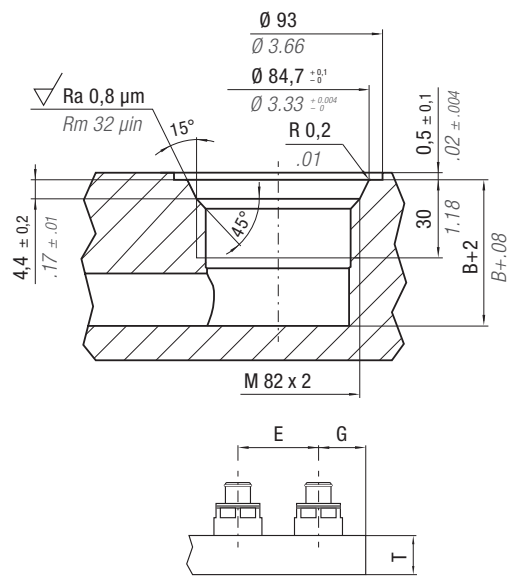
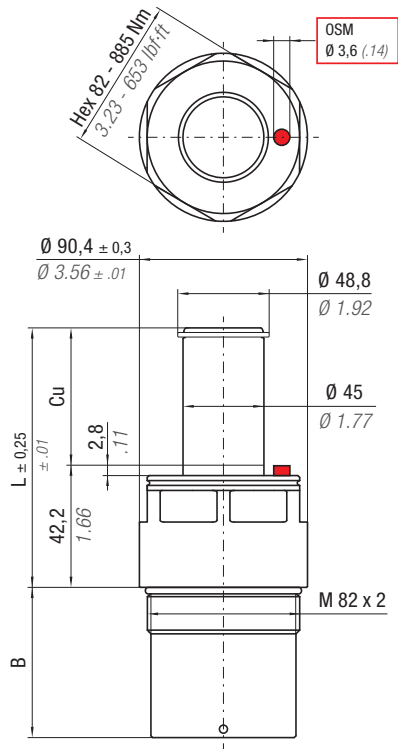
T* = 1500 psi/103 bar T** = 2000 psi/138 bar

HOW TO ORDER
 p. 27

ACCESSORIES
 p. 47

SERVICE TOOLS p. 69
Part Number 58UT046A

MAINTENANCE KIT
Part Number 39BMCRO3000A



P*		E min		G min	
psi	bar	inch	mm	inch	mm
1500	103	3.75	95	2.13	54
2000	138	4.50	115	2.44	62

P* = Charging pressure



ACTIVE SAFETY



CRD

Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 2000 psi 138 bar	P min 363 psi 25 bar	S 5.143 in ² 33,18 cm ²	
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PART NUMBER	Fo Initial Force		Cu		L		B		T*min		T**min		 ~ lb ~ Kg	
			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		
CRD 5000 - 1.00 - A			1.00	25,4	2.66	67,6	1.50	38,1	2.52	64,0	2.76	70,0	6.17	2,80
CRD 5000 - 1.50 - A			1.50	38,1	3.16	80,3	2.00	50,8	2.76	70,0	2.99	76,0	6.84	3,10
CRD 5000 - 2.00 - A			2.00	50,8	3.66	93,0	2.50	63,5	3.27	83,0	3.50	89,0	7.51	3,41
CRD 5000 - 2.50 - A			2.50	63,5	4.16	105,7	3.00	76,2	3.74	95,0	4.02	102,0	8.18	3,71
CRD 5000 - 3.00 - A			3.00	76,2	4.66	118,4	3.50	88,9	4.25	108,0	4.49	114,0	8.85	4,01
CRD 5000 - 3.50 - A			3.50	88,9	5.16	131,1	4.00	101,6	4.76	121,0	5.00	127,0	9.52	4,32
CRD 5000 - 4.00 - A			4.00	101,6	5.66	143,8	4.50	114,3	5.24	133,0	5.51	140,0	10.19	4,62
CRD 5000 - 4.50 - A			4.50	114,3	6.16	156,5	5.00	127,0	5.75	146,0	5.98	152,0	10.86	4,93
CRD 5000 - 5.00 - A			5.00	127,0	6.66	169,2	5.50	139,7	6.26	159,0	6.50	165,0	11.53	5,23
CRD 5000 - 5.50 - A			5.50	139,7	7.16	181,9	6.00	152,4	6.73	171,0	7.01	178,0	12.20	5,53
CRD 5000 - 6.00 - A			6.00	152,4	7.66	194,6	6.50	165,1	7.24	184,0	7.52	191,0	12.87	5,84
CRD 5000 - 6.50 - A			6.50	165,1	8.16	207,3	7.00	177,8	7.76	197,0	7.99	203,0	13.54	6,14
CRD 5000 - 7.00 - A			7.00	177,8	8.66	220,0	7.50	190,5	8.27	210,0	8.50	216,0	14.21	6,45

T* = 1500 psi/103 bar T** = 2000 psi/138 bar

HOW TO ORDER p. 27	ACCESSORIES p. 47	SERVICE TOOLS p. 69 Part Number 58UT047A	MAINTENANCE KIT Part Number 39BMCR05000A
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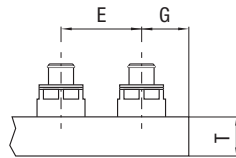
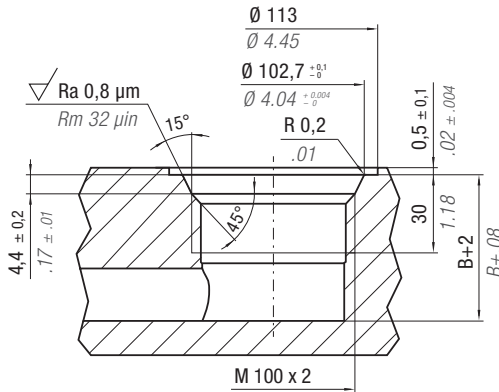


SW

ACTIVE SAFETY

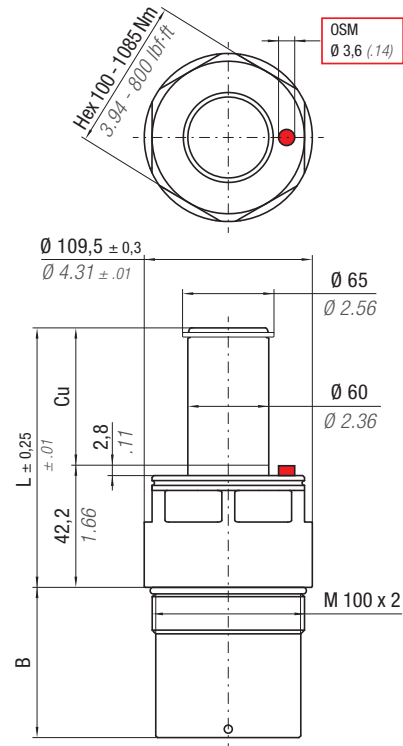


OSAS



P*	E min		G min		
	psi	bar	inch	mm	inch
1500	103	4.45	114	2.50	64
2000	138	5.38	137	3.00	77

P* = Charging pressure



Max Speed 315 ft/min 1,6 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 2000 psi 138 bar	P min 363 psi 25 bar	S 7.79 in ² 50,27 cm ²	
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PART NUMBER	F ₀ Initial Force	C _u		L		B		T* min		T** min		Weight	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CRD 8000 - 1.00 - A	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>6 ton 6000 daN</p> <p>1500 psi 103 bar</p> </div> <div style="text-align: center;"> <p>8 ton 8000 daN</p> <p>2000 psi 138 bar</p> </div> </div>	1.00	25,4	2.66	67,6	1.50	38,1	2.52	64,0	2.87	73,0	9.42	4,27
CRD 8000 - 1.50 - A		1.50	38,1	3.16	80,3	2.00	50,8	2.76	70,0	3.15	80,0	10.53	4,78
CRD 8000 - 2.00 - A		2.00	50,8	3.66	93	2.50	63,5	3.27	83,0	3.62	92,0	11.63	5,28
CRD 8000 - 2.50 - A		2.50	63,5	4.16	105,7	3.00	76,2	3.74	95,0	4.13	105,0	12.74	5,78
CRD 8000 - 3.00 - A		3.00	76,2	4.66	118,4	3.50	88,9	4.25	108,0	4.65	118,0	13.85	6,28
CRD 8000 - 3.50 - A		3.50	88,9	5.16	131,1	4.00	101,6	4.76	121,0	5.12	130,0	14.96	6,79
CRD 8000 - 4.00 - A		4.00	101,6	5.66	143,8	4.50	114,3	5.24	133,0	5.63	143,0	16.07	7,29
CRD 8000 - 4.50 - A		4.50	114,3	6.16	156,5	5.00	127,0	6.54	166,0	6.14	156,0	17.17	7,79
CRD 8000 - 5.00 - A		5.00	127,0	6.66	169,2	5.50	139,7	6.25	158,8	6.61	168,0	18.28	8,29
CRD 8000 - 5.50 - A		5.50	139,7	7.16	181,9	6.00	152,4	6.75	171,5	7.13	181,0	19.39	8,79
CRD 8000 - 6.00 - A		6.00	152,4	7.66	194,6	6.50	165,1	7.25	184,2	7.64	194,0	20.49	9,30
CRD 8000 - 6.50 - A		6.50	165,1	8.16	207,3	7.00	177,8	7.75	196,9	8.15	207,0	21.60	9,80
CRD 8000 - 7.00 - A		7.00	177,8	8.66	220,0	7.50	190,5	8.25	209,6	8.62	219,0	22.71	10,30
CRD 8000 - 7.50 - A		7.50	190,5	9.16	232,7	8.00	203,2	8.75	222,3	9.13	232,0	23.82	10,80
CRD 8000 - 8.00 - A		8.00	203,2	9.66	245,4	8.50	215,9	9.25	235,0	9.65	245,0	24.93	11,31

T* = 1500 psi/103 bar T** = 2000 psi/138 bar



HOW TO ORDER

p. 27



ACCESSORIES

p. 47

SERVICE TOOLS

p. 69

Part Number 58UT048A

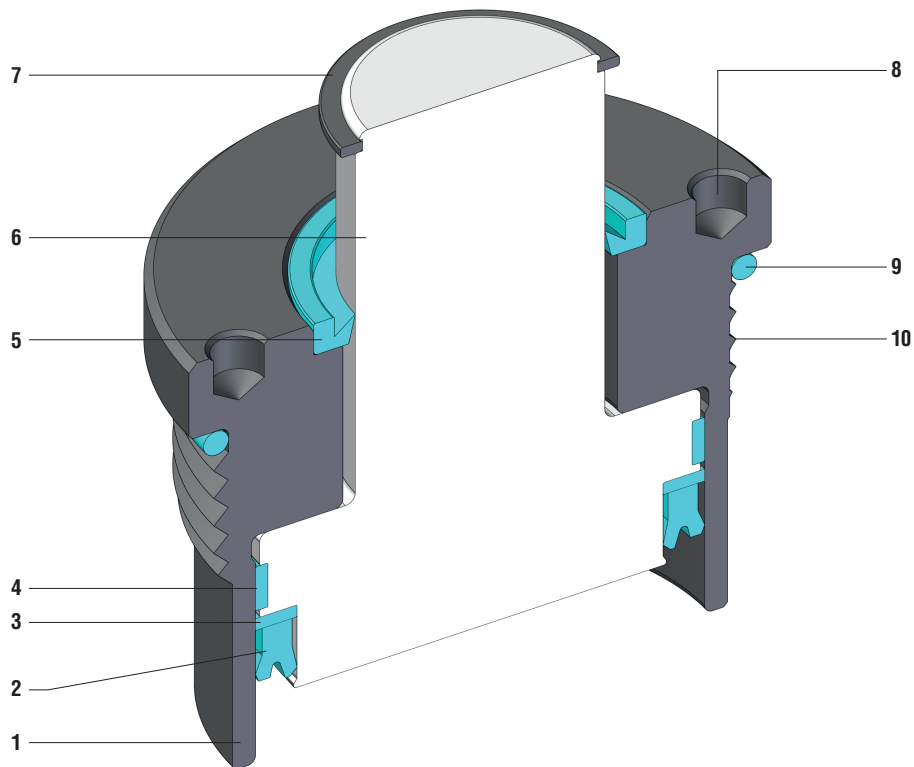
MAINTENANCE KIT

Part Number 39BMCRO8000A



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SEALING	PISTON SEAL
DESIGN	PISTON - BODY DESIGN

1	Body	5	Rod wiper	9	O-ring
2	Rod seal	6	Rod (nitrited superfinished)	10	Thread
3	Back-up ring	7	Seeger ring		
4	Guide ring	8	Grip holes		

RANGE CHART

Model	Body Ø		Stroke Cu		Initial Force F0		Thread	 OSAS	 SW
	<i>inch</i>	mm	<i>inch</i>	mm	<i>ton</i>	daN			
CA 2500	2.76	70	0.24 - 0.79	6 - 20	2.52	2520	M 64 X 2	-	-

- ✓ Built-in as standard
- ✓ Optional upon request

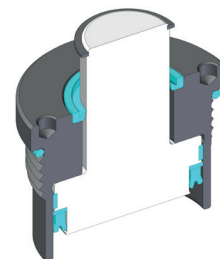
CA



HOW TO ORDER



Available version

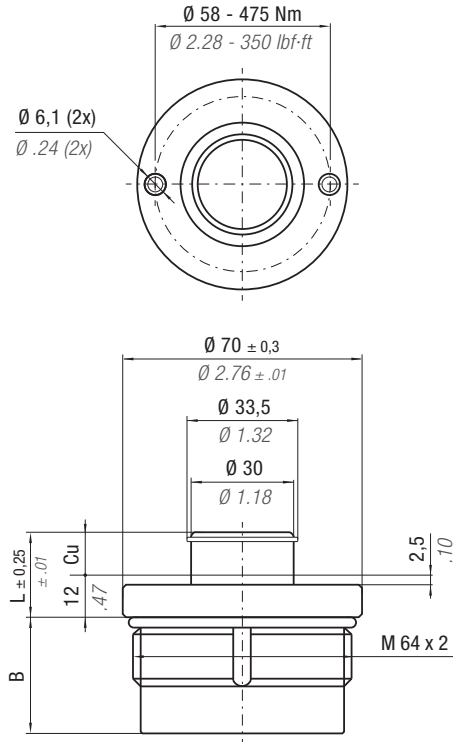
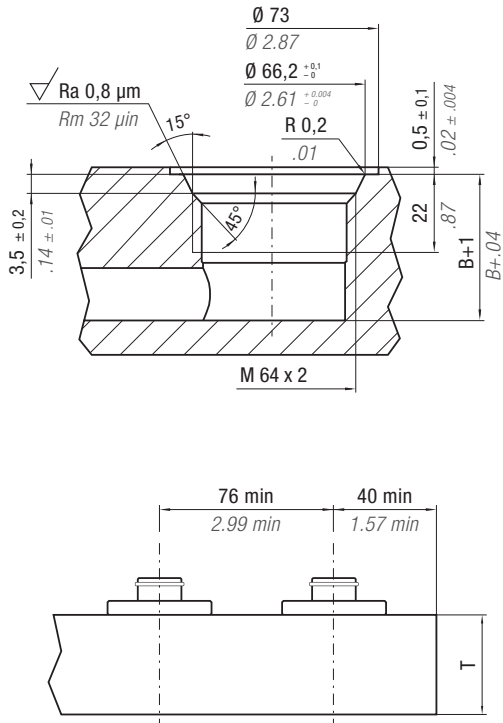


CA 2500-010-A
Standard Part Number



Manifold

ACTIVE SAFETY



Max Speed 158 ft/min 0,8 m/s	 32 - 176 °F 0 - 80 °C	 N ₂	P max 1595 psi 110 bar	P min 290 psi 20 bar	S 3.55 in ² 22,9 cm ²	 CAD						
PART NUMBER	F ₀ Initial Force		Cu		L		B		T			
	ton	daN	inch	mm	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CA 2500 - 006 - A	2.52	2520	0.24	6	0.71	18	1.18	30	2.20	56	1.77	0,80
CA 2500 - 010 - A			0.39	10	0.87	22	1.34	34	2.36	60	1.85	0,84
CA 2500 - 015 - A			0.59	15	1.06	27	1.54	39	2.56	65	1.96	0,89
CA 2500 - 020 - A			0.79	20	1.26	32	1.73	44	2.76	70	2.06	0,94



HOW TO ORDER

p. 35



ACCESSORIES

p. 47

SERVICE TOOLS p. 69

Part Number 58UT054A

MAINTENANCE KIT

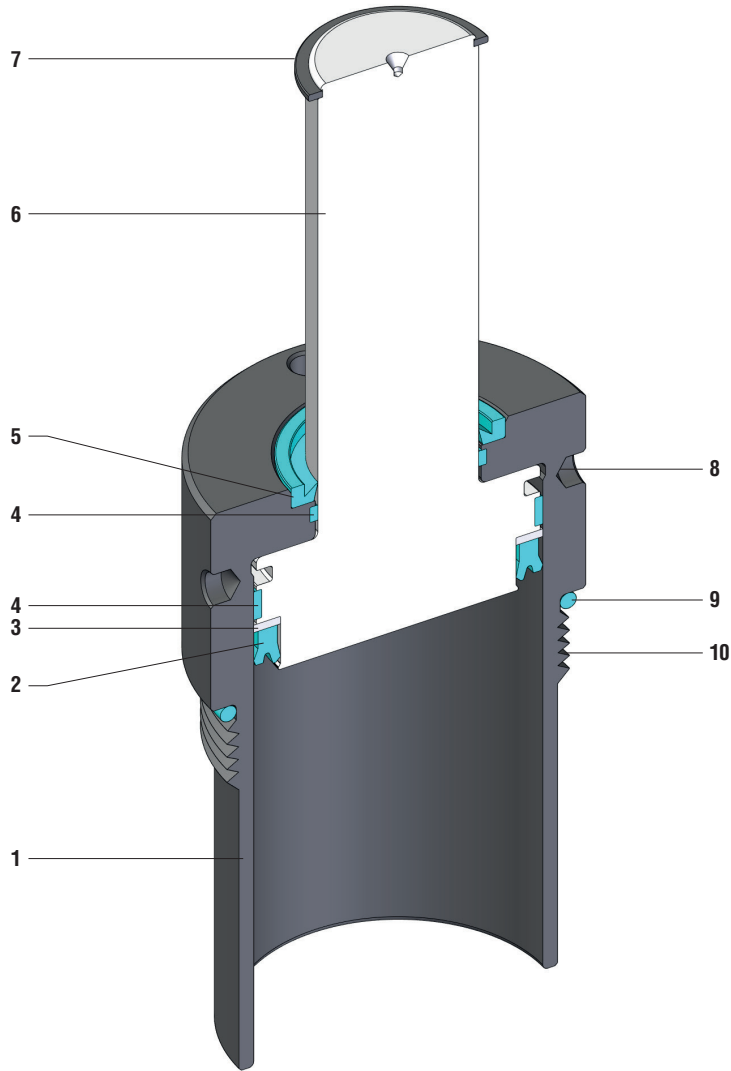
Part Number 39BMCA02500A



CA

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SEALING	PISTON SEAL
DESIGN	PISTON - BODY DESIGN

1	Body	5	Rod wiper	9	O-ring
2	Rod seal	6	Rod (nitrited superfinished)	10	Thread
3	Back-up ring	7	Seeger ring		
4	Guide ring	8	Grip holes		

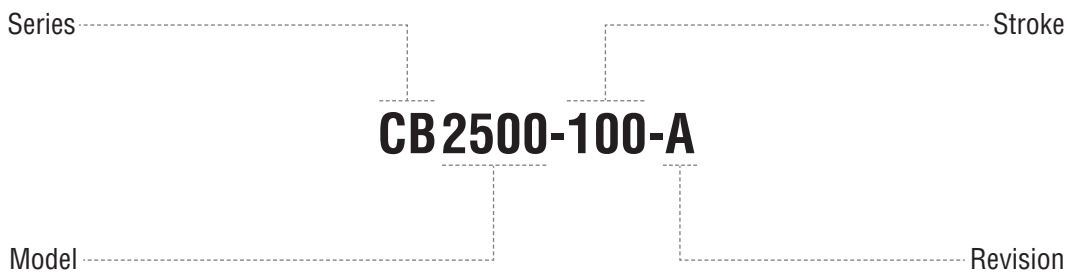
RANGE CHART

Model	Body Ø		Stroke Cu		Initial Force F0		Thread	 OSAS	 SW
	<i>inch</i>	mm	<i>inch</i>	mm	<i>ton</i>	daN			
CB 1000	2.13	54	0.98 - 5.91	25 - 150	1.06	1060	M 48 X 2	-	-
CB 2500	2.76	70	0.98 - 5.91	25 - 150	2.52	2520	M 64 X 2	-	-

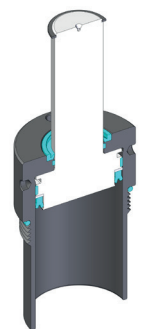
- ✓ Built-in as standard
- ✓ Optional upon request



HOW TO ORDER



Available version

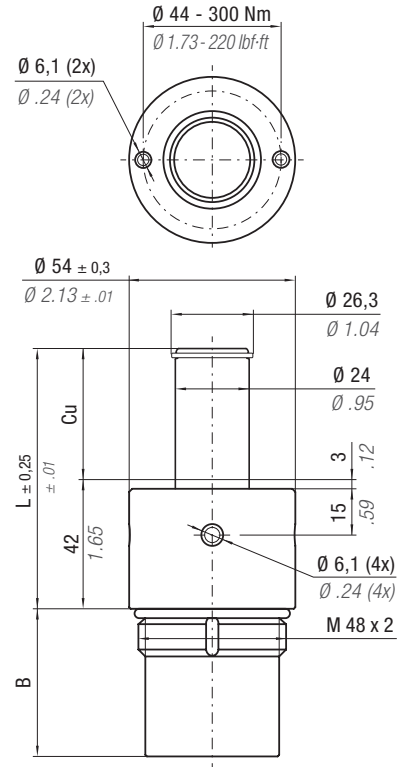
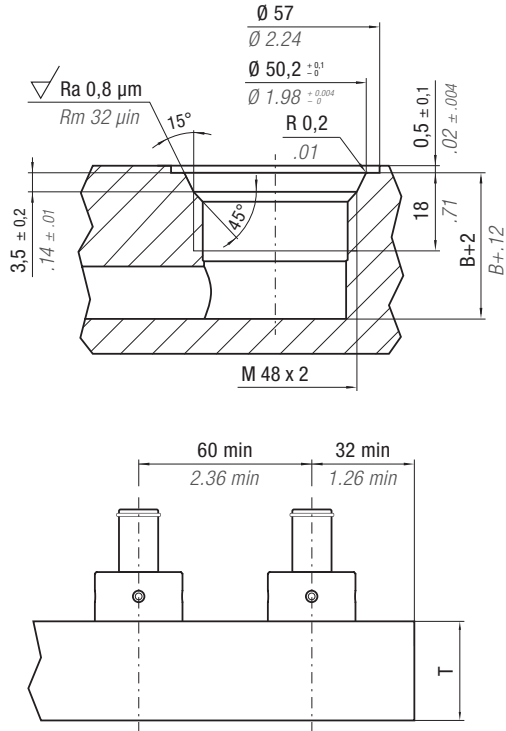


CB 2500-100-A
Standard Part Number



Manifold

ACTIVE SAFETY



Max Speed	Temperature	Gas	P max	P min	S	Accessories
158 ft/min 0.8 m/s	32 - 176 °F 0 - 80 °C	N ₂	1595 psi 110 bar	290 psi 20 bar	1.49 in ² 9.62 cm ²	Y Z CAJ

PART NUMBER	Fo		Cu		L		B		T		Weight	
	ton	daN	inch	mm	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CB 1000 - 025 - A	1.06	1060	0.98	25	2.64	67	0.91	23	1.69	43	1.81	0.82
CB 1000 - 038 - A			1.50	38	3.15	80	1.42	36	1.89	48	2.03	0.92
CB 1000 - 050 - A			1.97	50	3.62	92	1.89	48	2.36	60	2.23	1.01
CB 1000 - 075 - A			2.95	75	4.61	117	2.87	73	3.35	85	2.65	1.20
CB 1000 - 100 - A			3.94	100	5.59	142	3.86	98	4.33	110	3.08	1.40
CB 1000 - 150 - A			5.91	150	7.56	192	5.83	148	6.30	160	3.92	1.78



HOW TO ORDER

☞ p. 39



ACCESSORIES

☞ p. 47

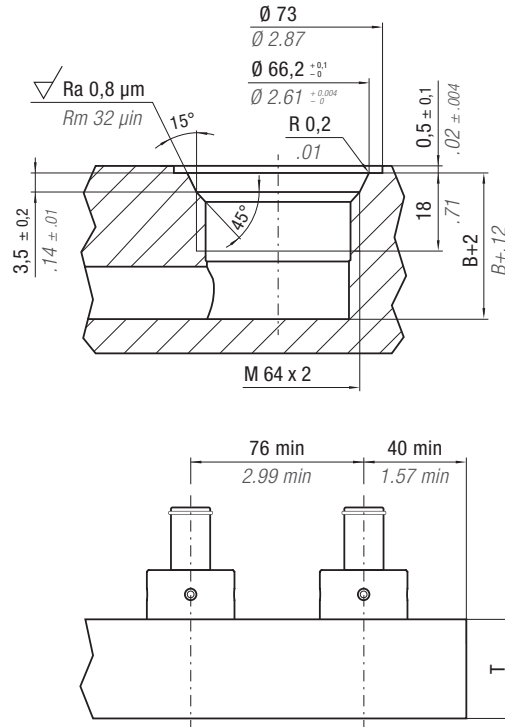
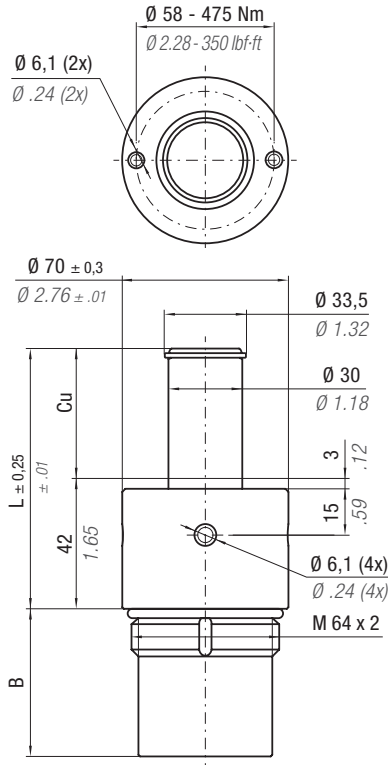
SERVICE TOOLS

☞ p. 69

Part Number 58UT051A or 58UT054A

MAINTENANCE KIT

Part Number 39BMCB02500A



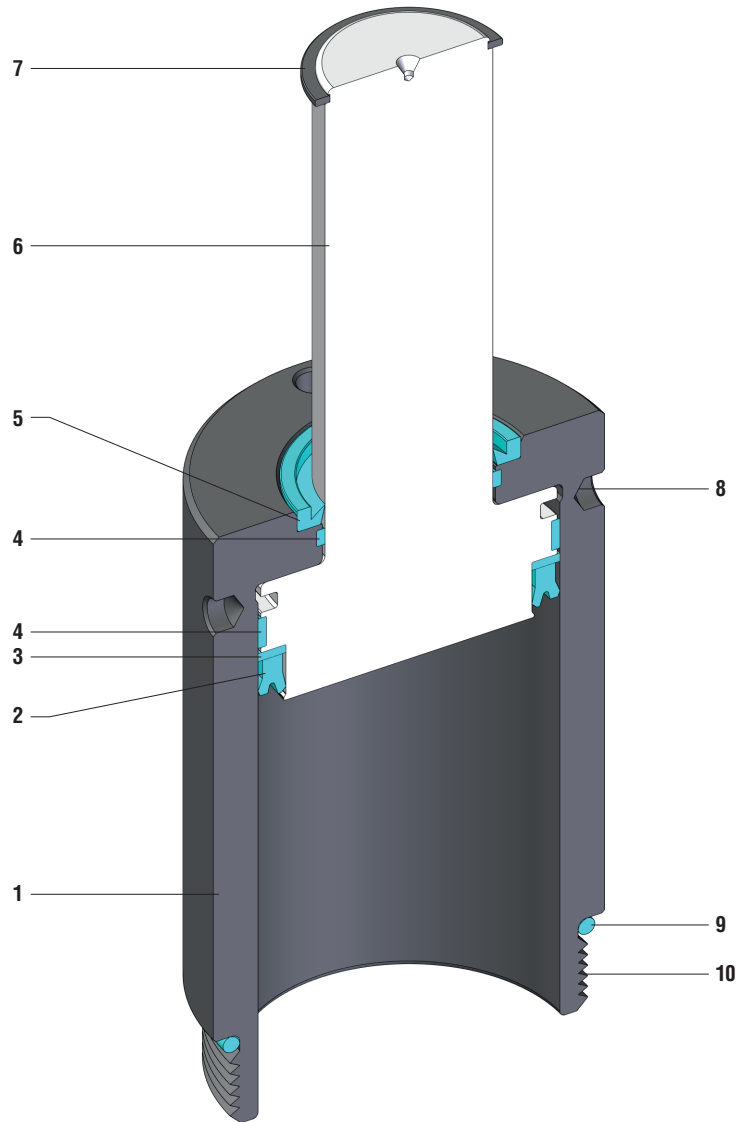
ACTIVE SAFETY

Max Speed 158 ft/min 0,8 m/s	32 - 176 °F 0 - 80 °C	N₂	P max 1595 psi 110 bar	P min 290 psi 20 bar	S 3.55 in ² 22,9 cm ²	
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PART NUMBER	F ₀ Initial Force		C _u		L		B		T			
	ton	daN	inch	mm	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CB 2500 - 025 - A	2.52	2520	0.98	25	2.64	67	0.91	23	1.69	43	2.83	1,28
CB 2500 - 038 - A			1.50	38	3.15	80	1.42	36	1.97	50	3.10	1,41
CB 2500 - 050 - A			1.97	50	3.62	92	1.89	48	2.44	62	3.35	1,52
CB 2500 - 075 - A			2.95	75	4.61	117	2.87	73	3.43	87	3.87	1,75
CB 2500 - 100 - A			3.94	100	5.59	142	3.86	98	4.41	112	4.38	1,99
CB 2500 - 150 - A			5.91	150	7.56	192	5.83	148	6.38	162	5.42	2,46

CB



HOW TO ORDER p. 39	ACCESSORIES p. 47	SERVICE TOOLS p. 69 Part Number 58UT051A or 58UT054A	MAINTENANCE KIT Part Number 39BMCC01000A
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SEALING	PISTON SEAL
DESIGN	PISTON - BODY DESIGN

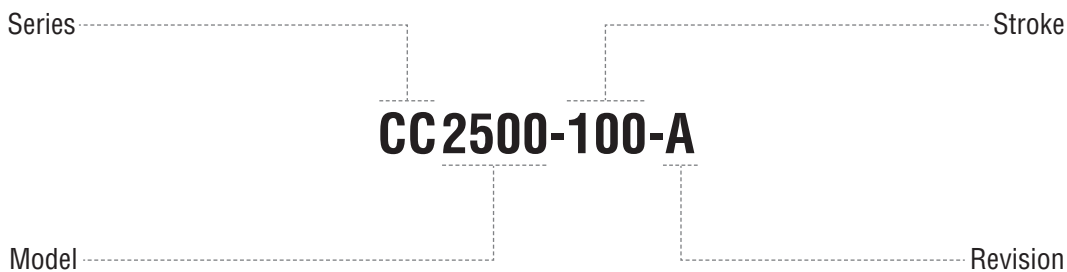
1	Body	5	Rod wiper	9	O-ring
2	Rod seal	6	Rod (nitrited superfinished)	10	Thread
3	Back-up ring	7	Seeger ring		
4	Guide ring	8	Grip holes		

RANGE CHART

Model	Body Ø		Stroke Cu		Initial Force F0		Thread	 OSAS	 SW
	<i>inch</i>	mm	<i>inch</i>	mm	<i>ton</i>	daN			
CC 500	1.65	42	.49 - 3.94	12,5 - 100	.54	540	M 36 X 2	-	-
CC 1000	2.13	54	.98 - 5.91	25 - 150	1.06	1060	M 48 X 2	-	-
CC 2500	2.76	70	.98 - 5.91	25 - 150	2.52	2520	M 64 X 2	-	-

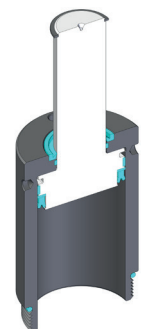
- ✓ Built-in as standard
- ✓ Optional upon request

HOW TO ORDER



Available version

CC

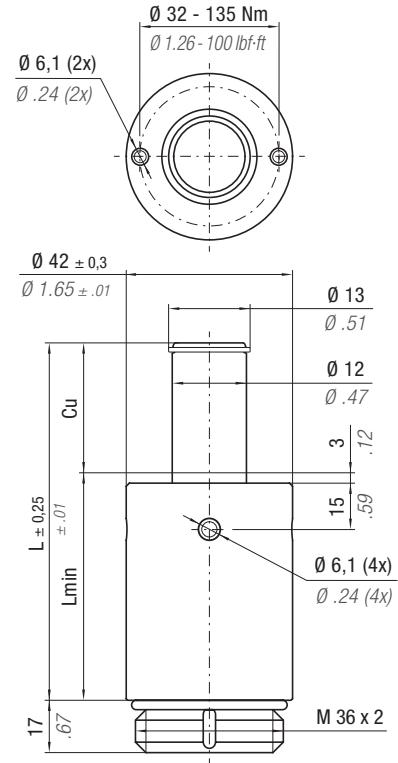
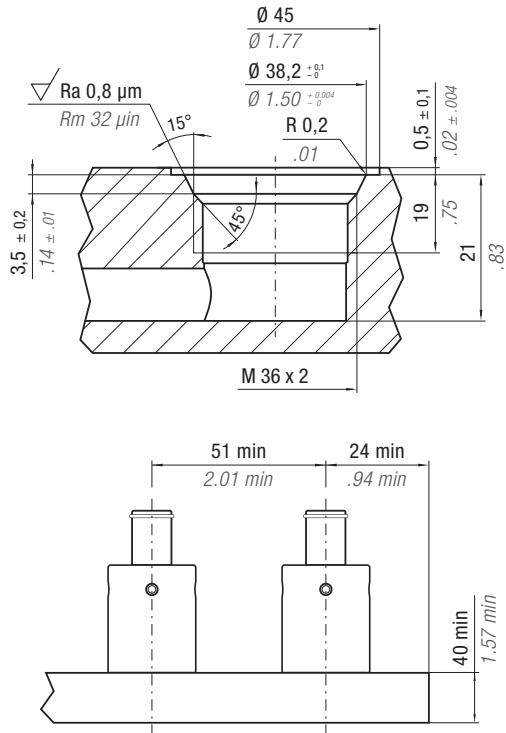


CC 2500-100-A
Standard Part Number



Manifold

ACTIVE SAFETY



Max Speed	Temperature	Gas	P max	P min	S	Accessories
158 ft/min 0.8 m/s	32 - 176 °F 0 - 80 °C	N ₂	1595 psi 110 bar	290 psi 20 bar	.76 in ² 4.90 cm ²	Y Z

PART NUMBER	F ₀ Initial Force		C _u		L		L min		Weight	
	ton	daN	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CC 500 - 012 - A	.54	540	0.49	12,5	1.79	45,5	1.30	33,0	0.81	0,37
CC 500 - 025 - A			0.98	25	2.78	70,5	1.79	45,5	1.03	0,47
CC 500 - 038 - A			1.50	38	3.80	96,5	2.30	58,5	1.26	0,57
CC 500 - 050 - A			1.97	50	4.74	120,5	2.78	70,5	1.47	0,67
CC 500 - 075 - A			2.95	75	6.71	170,5	3.76	95,5	1.90	0,86
CC 500 - 100 - A			3.94	100	8.68	220,5	4.74	120,5	2.34	1,06



HOW TO ORDER

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ACCESSORIES

p. 47

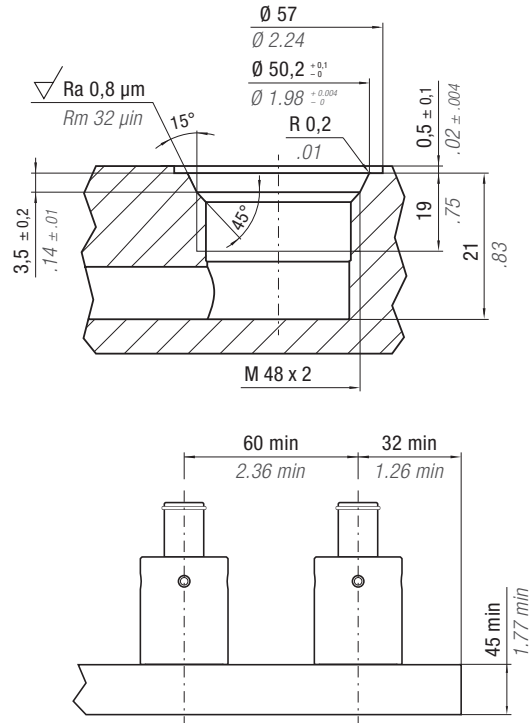
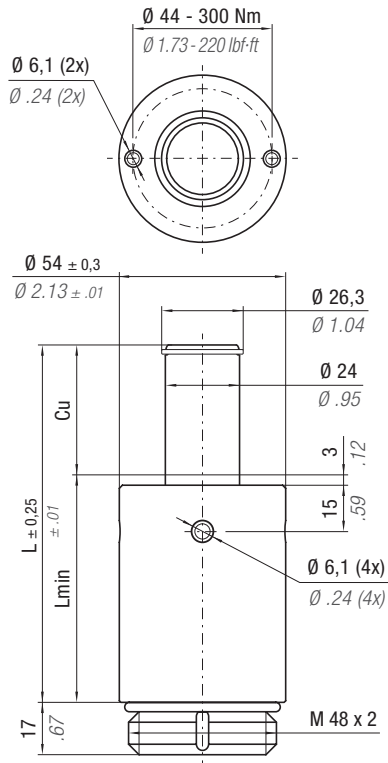
SERVICE TOOLS

p. 69

Part Number 58UT050A or 58UT054A

MAINTENANCE KIT

Part Number 39BMCC00500A



ACTIVE SAFETY

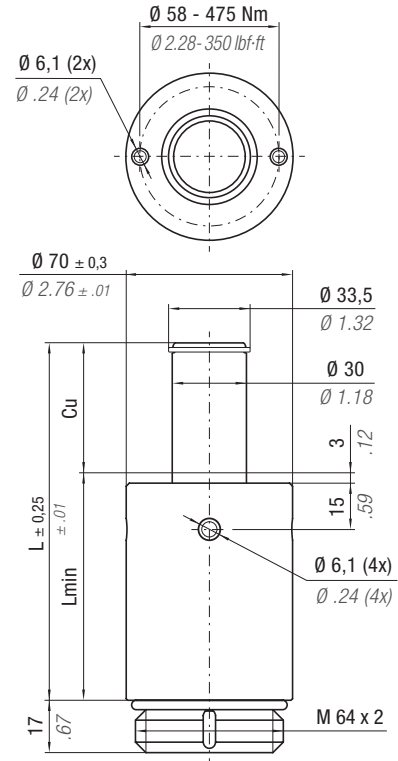
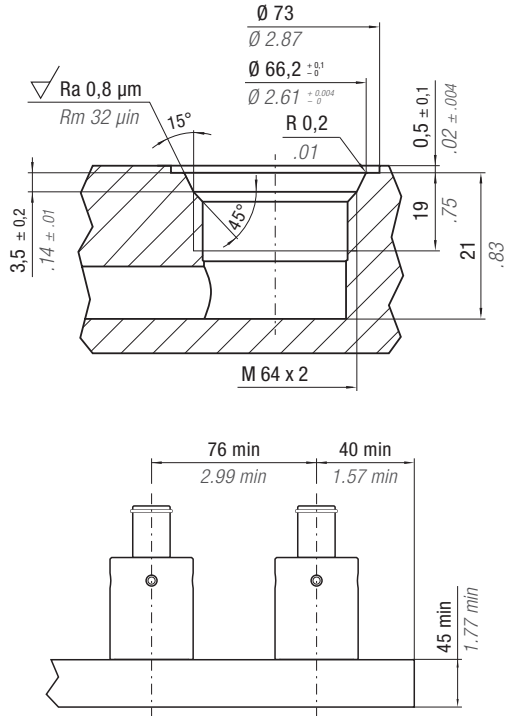
Max Speed 158 ft/min 0,8 m/s	32 - 176 °F 0 - 80 °C	N₂	P max 1595 psi 110 bar	P min 290 psi 20 bar	S 1.491 in ² 9,62 cm ²	
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PART NUMBER	F ₀ Initial Force		C _u		L		L min		 ~ lb ~ Kg	
	ton	daN	inch	mm	inch	mm	inch	mm		
CC 1000 - 025 - A	1.06	1060	0.98	25	2.89	73,5	1.91	48,5	1,91	0,87
CC 1000 - 038 - A			1.5	38	3.92	99,5	2.42	61,5	2,31	1,050
CC 1000 - 050 - A			1.97	50	4.86	123,5	2.89	73,5	2,68	1,217
CC 1000 - 075 - A			2.95	75	6.83	173,5	3.88	98,5	3,45	1,567
CC 1000 - 100 - A			3.94	100	8.80	223,5	4.86	123,5	4,22	1,916
CC 1000 - 150 - A			5.91	150	12.74	323,5	6.83	173,5	5,77	2,615

CC

HOW TO ORDER p. 43	ACCESSORIES p. 47	SERVICE TOOLS p. 69 Part Number 58UT051A or 58UT054A	MAINTENANCE KIT Part Number 39BMCC01000A
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ACTIVE SAFETY



Max Speed 158 ft/min 0,8 m/s	32 - 176 °F 0 - 80 °C	N ₂	P max 1595 psi 110 bar	P min 290 psi 20 bar	S 3.55 in ² 22,9 cm ²	
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PART NUMBER	F ₀ Initial Force		C _u		L		L min			
	ton	daN	inch	mm	inch	mm	inch	mm	~ lb	~ Kg
CC 2500 - 025 - A	2.52	2520	0.98	25	2.89	73,5	1.91	48,5	2.96	1,34
CC 2500 - 038 - A			1.50	38	3.92	99,5	2.42	61,5	3.47	1,57
CC 2500 - 050 - A			1.97	50	4.86	123,5	2.89	73,5	3.94	1,79
CC 2500 - 075 - A			2.95	75	6.83	173,5	3.88	98,5	4.92	2,23
CC 2500 - 100 - A			3.94	100	8.80	223,5	4.86	123,5	5.90	2,68
CC 2500 - 150 - A			5.91	150	12.74	323,5	6.83	173,5	7.86	3,56



HOW TO ORDER

p. 43



ACCESSORIES

p. 47

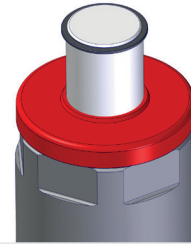
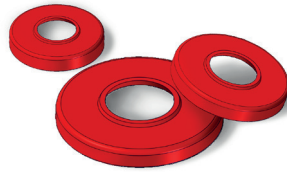
SERVICE TOOLS

p. 69

Part Number 58UT050A or 58UT054A

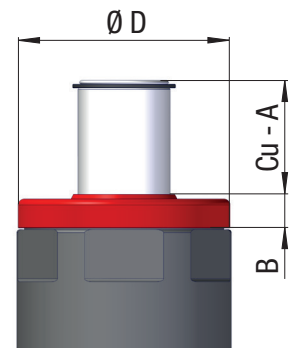
MAINTENANCE KIT

Part Number 39BMCB02500A

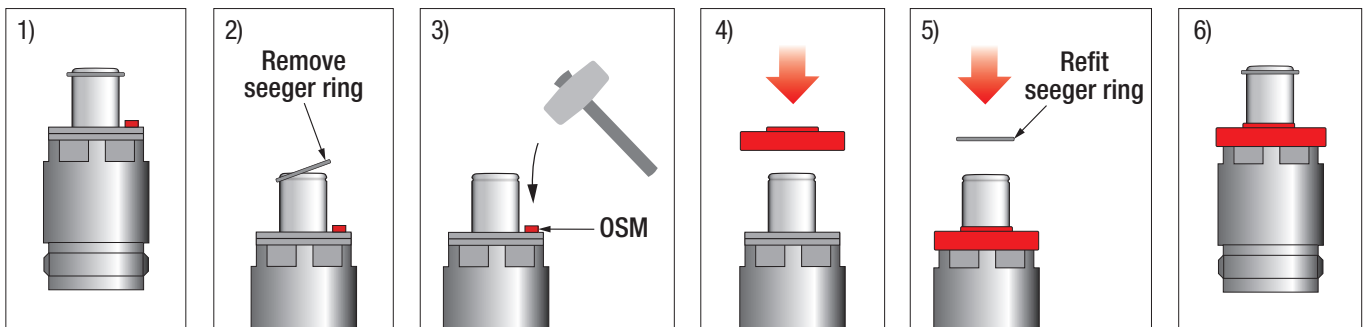


Special Springs offers a complete range of secondary wipers to improve performances of Manifold cylinders used in heavy contaminated environments. The new Secondary Wipers, made in polyurethane, are designed for a perfect fitting with many series of Manifold cylinders. The secondary wipers can be ordered separately from the cylinders and can be installed by the user.

MANIFOLD CYLINDER PART NUMBER	A		B		Ø D		SECONDARY WIPER PART NUMBER
	inch	mm	inch	mm	inch	mm	
CR 750 / CRD 750	.04	1,1	.43	11	1.65	42	59SW051
CR 1500 / CRD 1500	.05	1,3	.43	11	2.13	54	59SW052
CR 3000 / CRD 3000	.04	1,0	.43	11	2.72	69	59SW053
CR 5000 / CRD 5000 / CR 5200	.02	0,4	.43	11	3.39	86	59SW054
CR 8000 / CRD 8000 / CR 7700	.02	0,4	.43	11	4.09	104	59SW055
CR 10700	.03	0,7	.43	11	4.88	124	59SW056



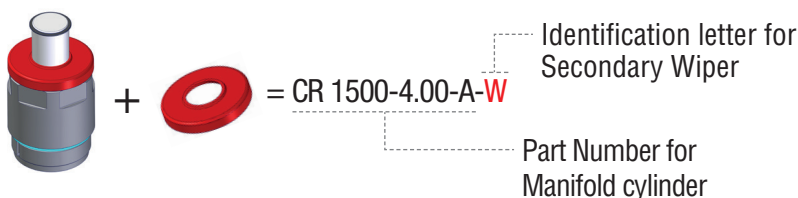
Cu = Nominal Stroke
A = Nominal stroke reduction



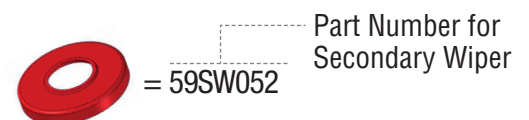
The Secondary Wiper (SW) can be installed directly by the user, after removing the seeger ring and compressing the Over Stroke Marker (OSM). Make sure not to damage the rod or cylinder body.

HOW TO ORDER

E.g. How to order a Manifold cylinder **with** Secondary Wiper



E.g. How to order **only** the Secondary Wiper



SW

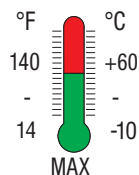
HOSES AND FITTINGS



Store hoses and fittings away from heat sources and direct sunlight (UV radiation).



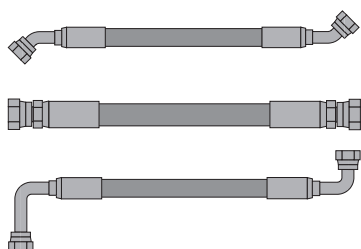
Keep hoses and fittings protected against high temperatures and contact with oils, solvents, acids and aggressive fluids in general (e.g. soda and chlorides).



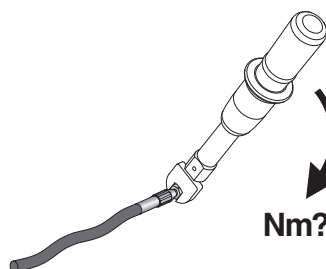
20% ÷ 60%
20°C / 68°F



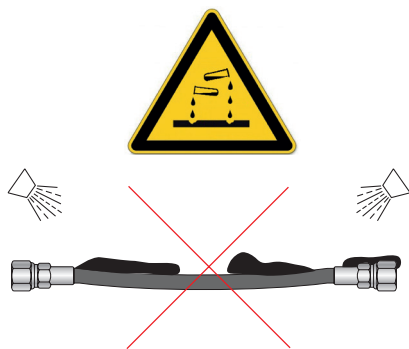
Select fittings suitable for the system.



Respect the correct tightening torque of the fittings as specified in the catalogue for each model.



Avoid contact with solvents, acids and aggressive fluids in general (e.g. soda and chlorides) during use.



Check at each maintenance of the die the condition of the hoses and specifically:

- Absence of hose deterioration due to rubbing, wear, cutting or crushing.
- Positioning of the hoses corresponding to the project's specifications.
- Correct tightening of the fittings.



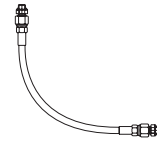
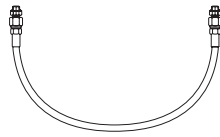
When producing the hoses, follow the instructions given in the user manual of the hydraulic press 39PR06.



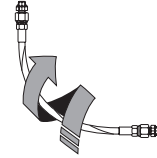
If correctly installed and used, without being exposed to risk factors, the expected lifetime of hoses and fittings is at least equal to the one of Manifold cylinders.

LIFE WARRANTY

RIGHT



WRONG



Part Number 39PR06

- Transportable press with hydraulic manual pump.
- Suitable for straight, 45° and 90° fittings.



Part Number 58UT022A (included)

Magnet tool to remove pressing jaws.



Part Number 58UT001A (optional)

Scissor for hose.



Part Number 58UT023A (optional)

LED Light with magnet.



AIR 7 bar 110 psi	100 TON 110 US TON	380 x 430 x 400 mm 15 x 17 x 16 inch	38 kg 84 lb	-5 ÷ 40 °C 23 ÷ 104 °F

CONNECTIONS

JIC 37°
"TNC"
HOSE Ø 8,1

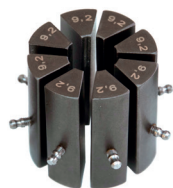


ORFS
"HY 400"
HOSE Ø 12,7



PRESSING JAWS

Part Number 39MTR11 (optional)



Part Number 39MTR13 (optional)

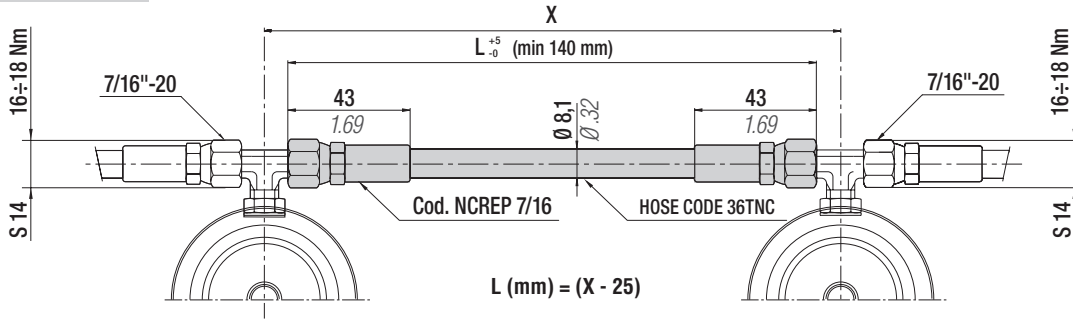


How to Order

39PR06A
+
39MTR11

Pressing jaws for
Jic 37° "TNC"
HOSE Ø 8,1

Part Number TNC 7/16...

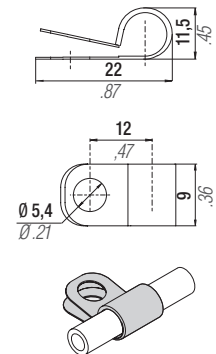


Technical data				
"L" min	See above	5.51 in	Volume	12,6 ml/metre
Operation pressure	420 bar	6090 psi	Dimension	1/8" (external ø 8,1 mm)
Burst Pressure	1680 bar at 20°C	24360 psi at 68°F	Material	Thermoplastic
R (bending radius)	25 mm	0.98 in	Standard	SAE 100R8
Operation temperature	-40+ 100°C	-38 +212°F	Outer casing	Perforated

⚠ Standard lengths (mm) inclusive of no. 2 connections NCREP 7/16 ⚠

L = 5 mm upword increase - Example (TNC 7/16 140 mm; TNC 7/16 145 mm ...)

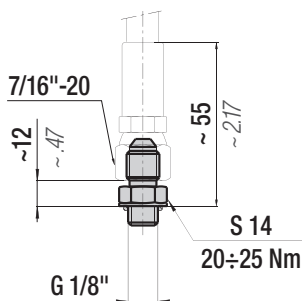
Part Number: 36FF09A



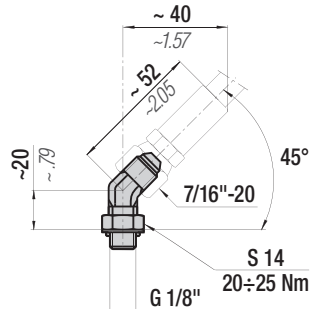
CONNECTIONS JIC 37°

Hose-cylinder/panel connections

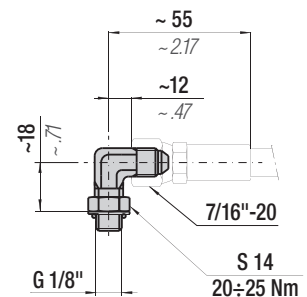
Part Number RTC-D



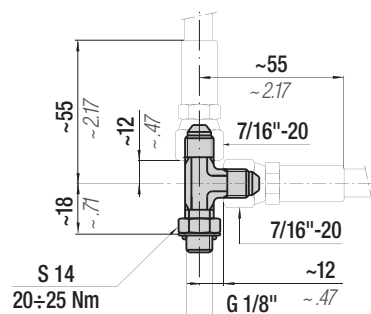
Part Number RTC-M



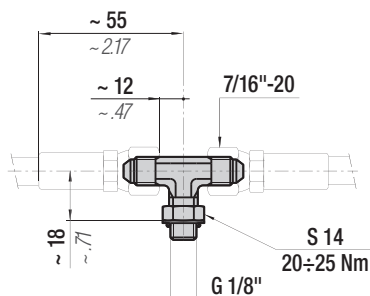
Part Number RTC-R



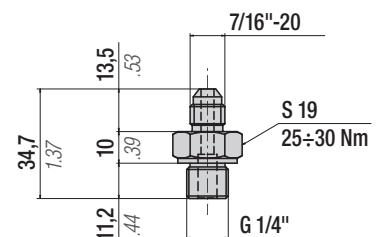
Part Number RTC-L



Part Number RTC-T



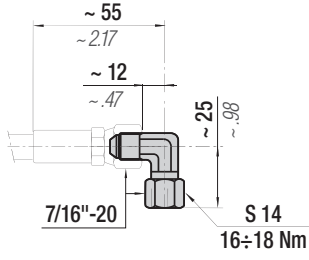
Part Number 36J01A



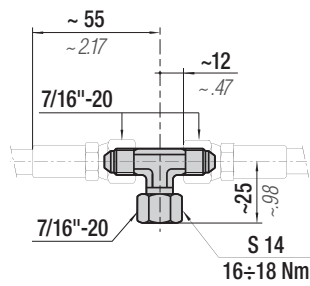
All dimensions in mm/inch

Offtake connections

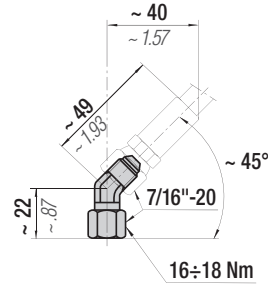
Part Number RDR



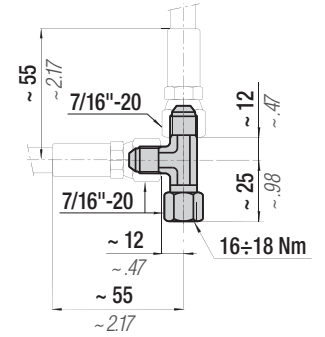
Part Number RDT



Part Number RDM

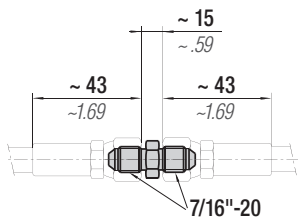


Part Number RDL

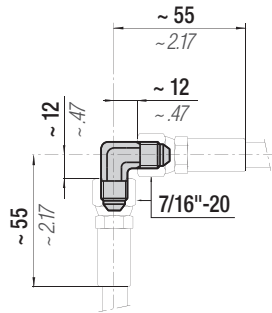


Hose-hose connections

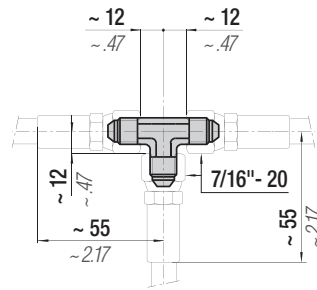
Part Number RTT-D



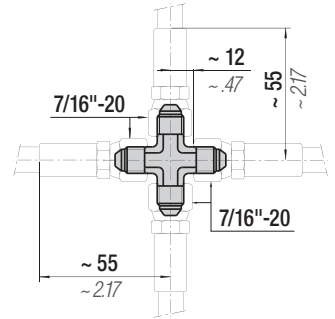
Part Number RTT-R



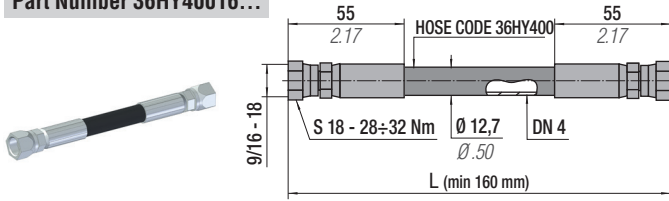
Part Number RTT-T



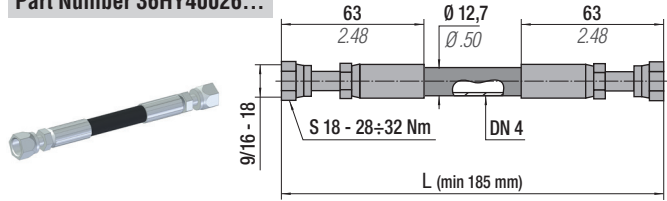
Part Number RTT-C



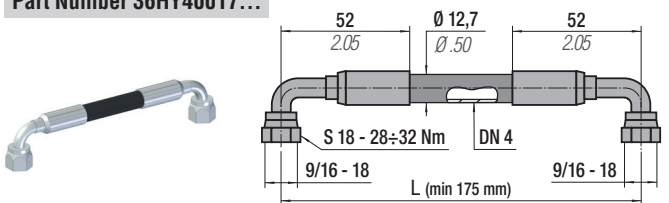
Part Number 36HY40016...



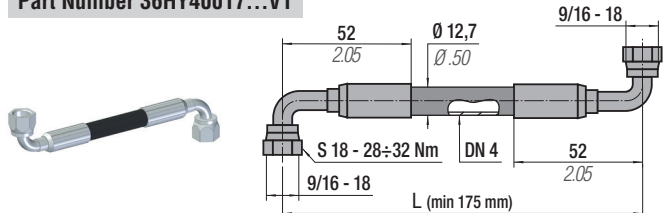
Part Number 36HY40026...



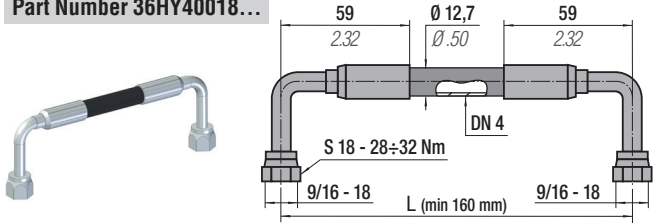
Part Number 36HY40017...



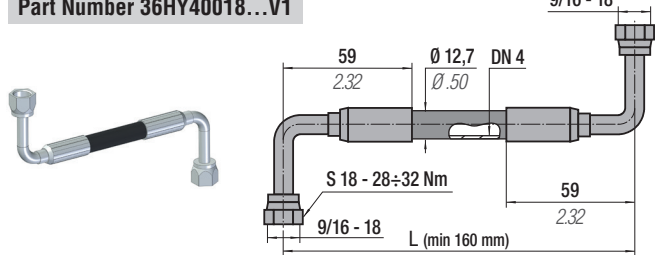
Part Number 36HY40017...V1



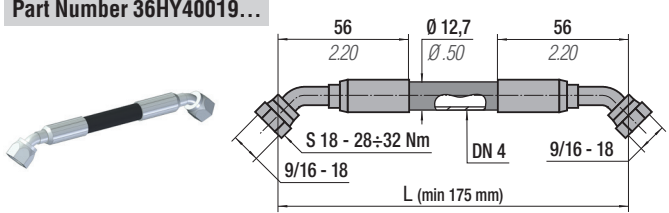
Part Number 36HY40018...



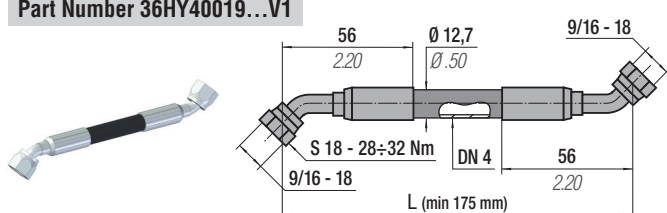
Part Number 36HY40018...V1



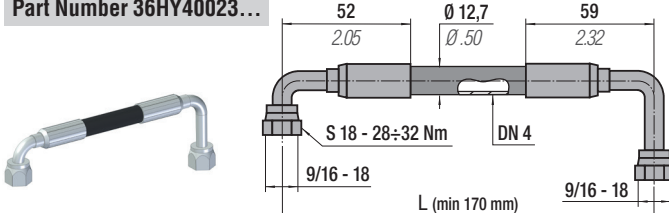
Part Number 36HY40019...



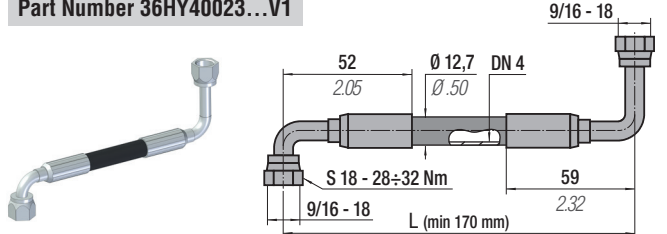
Part Number 36HY40019...V1



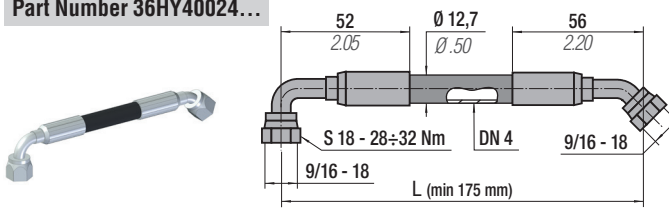
Part Number 36HY40023...



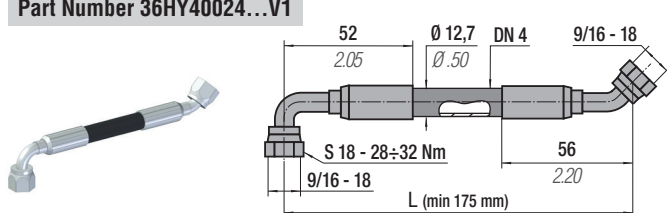
Part Number 36HY40023...V1



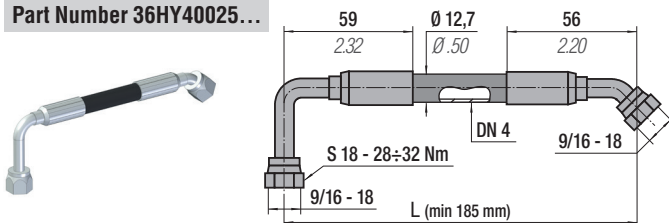
Part Number 36HY40024...



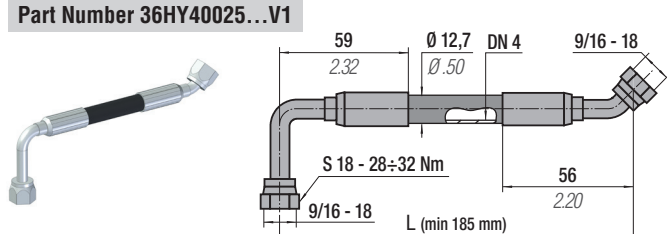
Part Number 36HY40024...V1



Part Number 36HY40025...

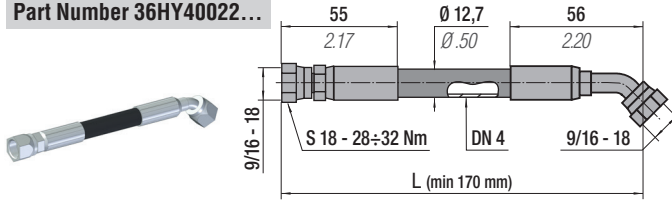


Part Number 36HY40025...V1

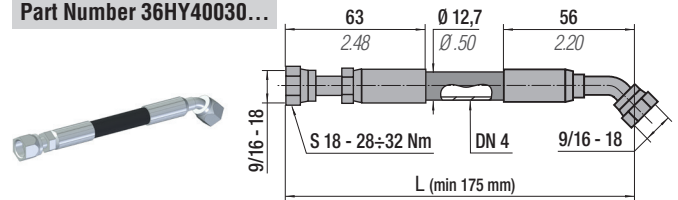


All dimensions in mm/inch

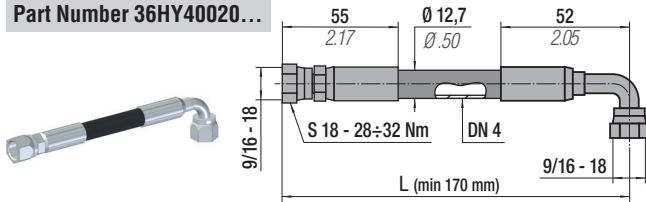
Part Number 36HY40022...



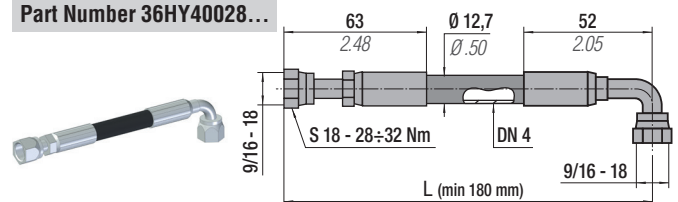
Part Number 36HY40030...



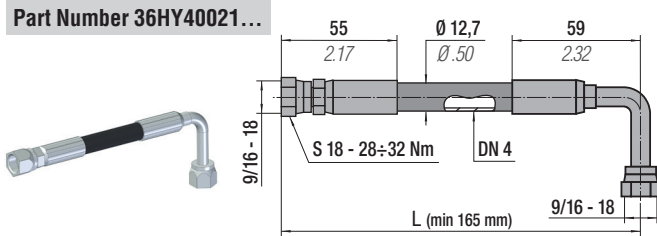
Part Number 36HY40020...



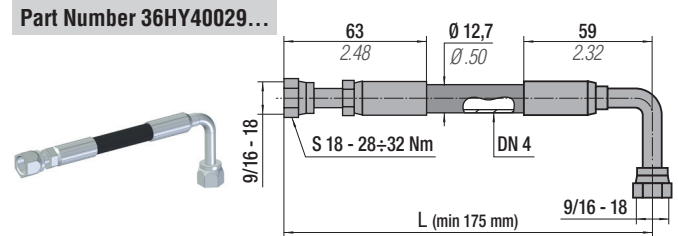
Part Number 36HY40028...



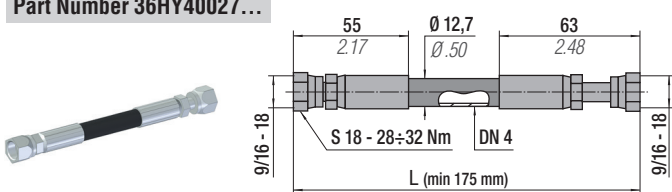
Part Number 36HY40021...



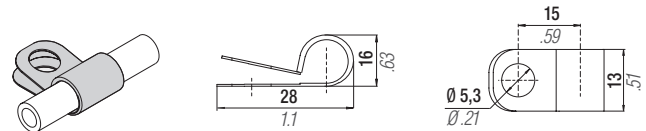
Part Number 36HY40029...



Part Number 36HY40027...



Part Number: 36FF13A



Technical data

"L" min	See each type	-	Volume	32 ml/metre
Operation pressure	345 bar	5003 psi	Dimension	1/4" (external Ø 12,7 mm)
Burst Pressure	1380 bar at 20°C	20010 psi at 68°F	Material	Thermoplastic
R (bending radius)	51 mm	2.01 in	Standard	SAE 100R8
Operation temperature	-40+ 100°C	-38 +212°F	Outer casing	Perforated



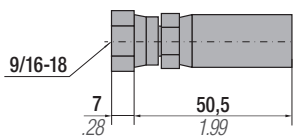
Length upon request including end hose fittings

L = 5 mm upword increase - Example (36HY40016 0300; 36HY40016 0305; ...)

HOSE FITTINGS

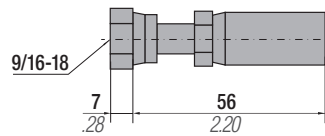
Part Number 36P9/1604

Straight Swivel



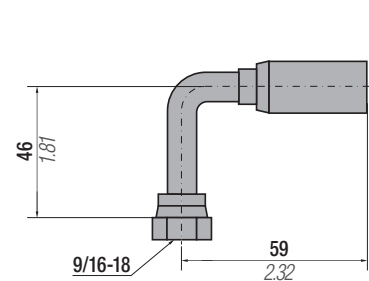
Part Number 36P9/1605

Straight Long Swivel



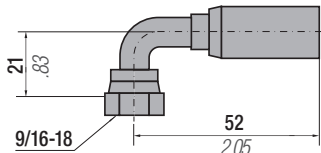
Part Number 36P9/1606

90° Long Swivel



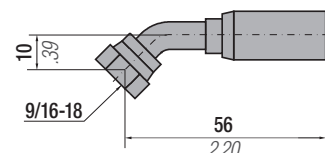
Part Number 36P9/1607

90° Swivel



Part Number 36P9/1608

45° Swivel

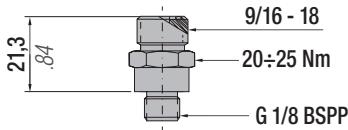


All dimensions in mm/inch

Hose-cylinder/panel connections

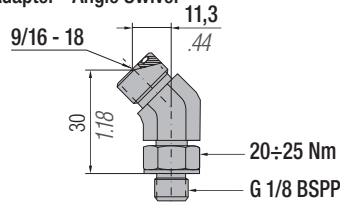
Part Number PA-S

Port Adapter - Straight



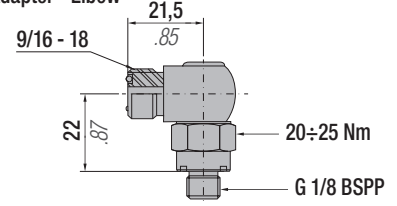
Part Number PA-AS

Port Adapter - Angle Swivel



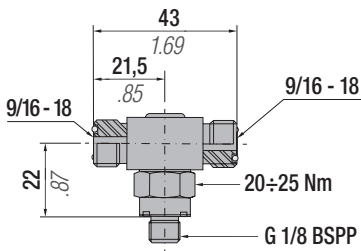
Part Number PA-E

Port Adapter - Elbow



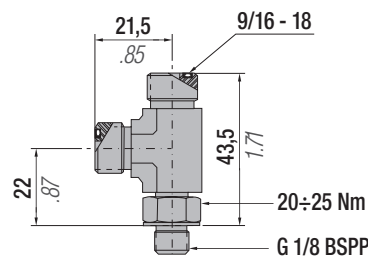
Part Number PA-BTS

Port Adapter - Brach Tee Swivel



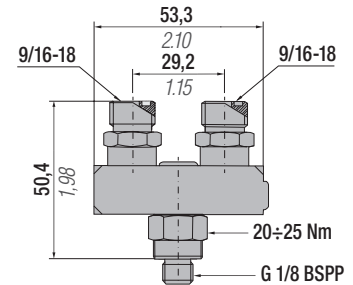
Part Number PA-RT

Port Adapter - Run Tee



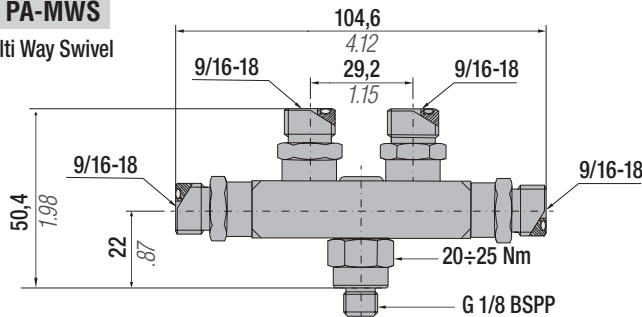
Part Number PA-TWS

Port Adapter - Two Way Swivel

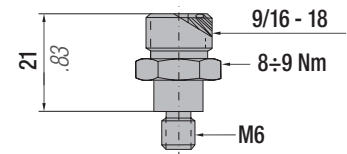


Part Number PA-MWS

Port Adapter - Multi Way Swivel



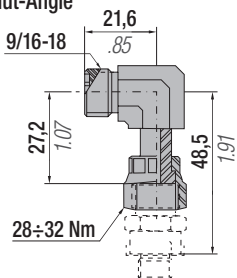
Part Number PA-M6



Offtake connections

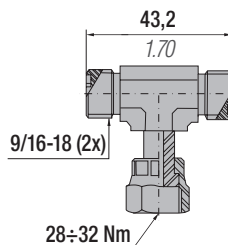
Part Number SN-A

Swivel Nut-Angle



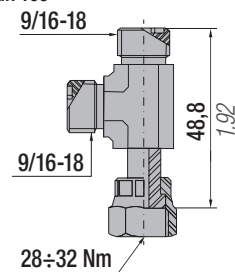
Part Number SN-BT

Swivel Nut-Branch Tee



Part Number SN-RT

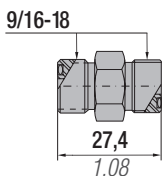
Swivel Nut-Run Tee



Hose-hose connections

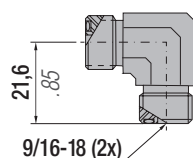
Part Number F-U

Fitting-Union



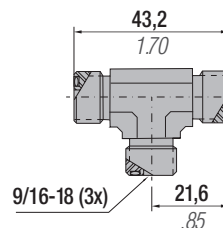
Part Number F-E

Fitting-Elbow



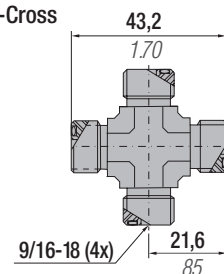
Part Number F-T

Fitting-Tee



Part Number F-C

Fitting-Cross

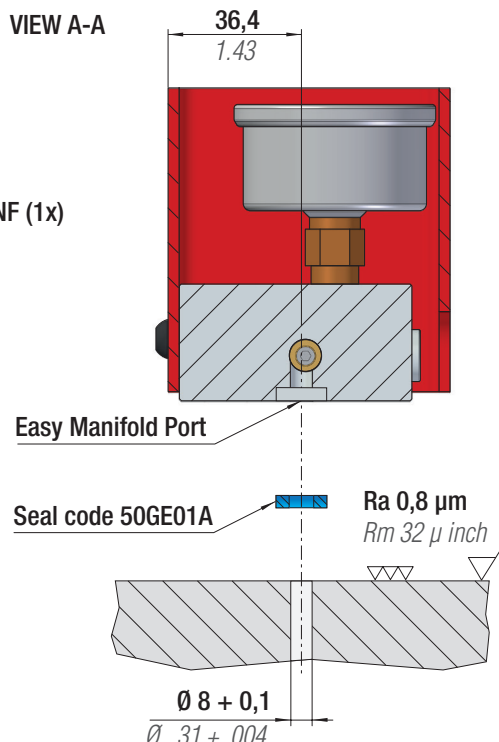
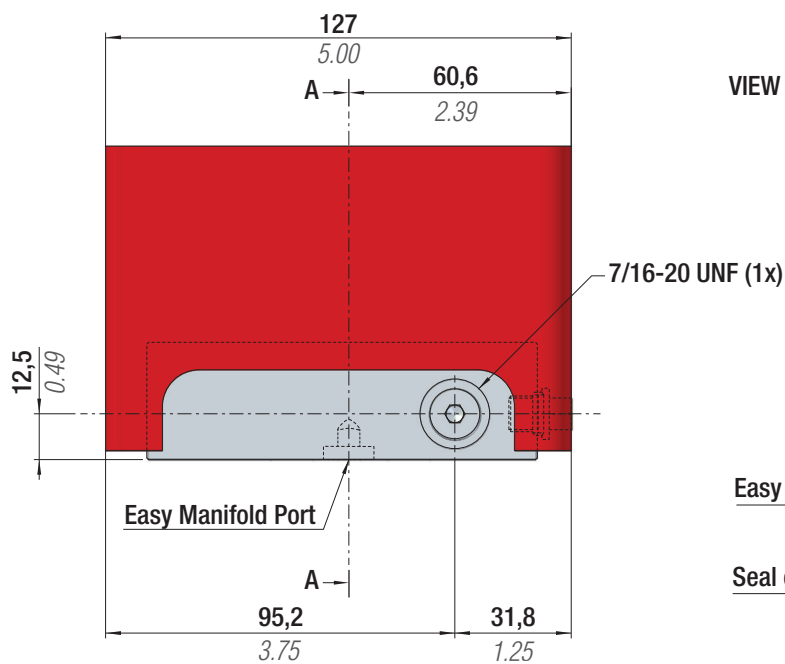
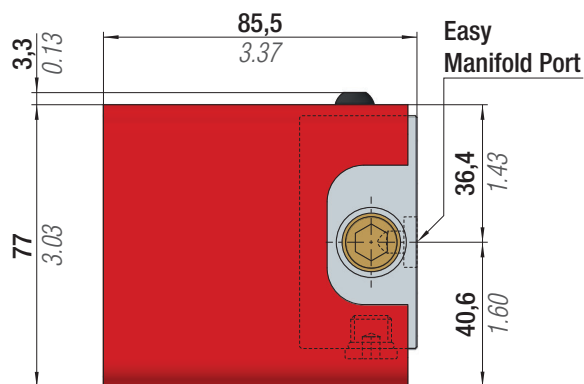
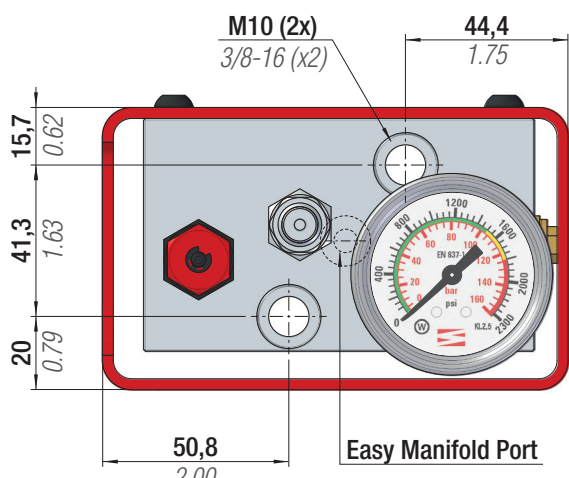
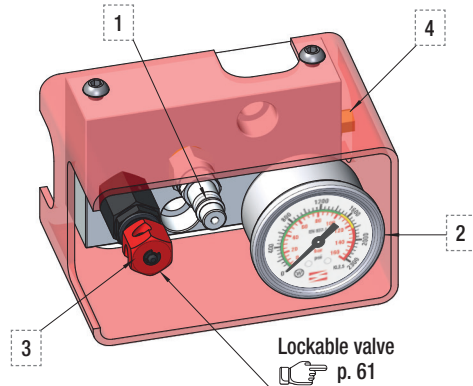


All dimensions in mm/inch

Micro control panel with aluminium base, gauge, charging and discharging valve, overpressure rupture plug and steel protection. Suitable for hose systems equipped with micro hose and micro connections. 16 M6 ports.

Part Number	Pressure Gauge	Rupture Plug	Easy Manifold
39CP24A	bar/psi	✓	✓

1	Quick coupling for charging Cejn	3	Discharging valve
2	Pressure gauge 0 ÷ 160 bar / 0 ÷ 2300 psi	4	CE marked rupture plug



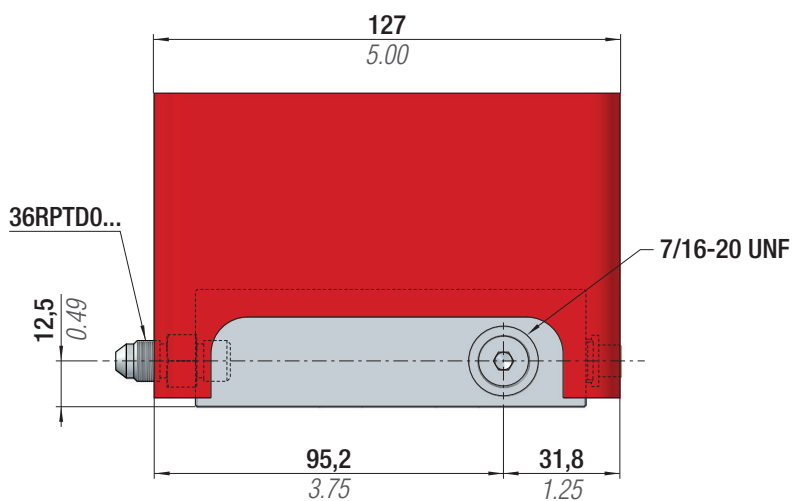
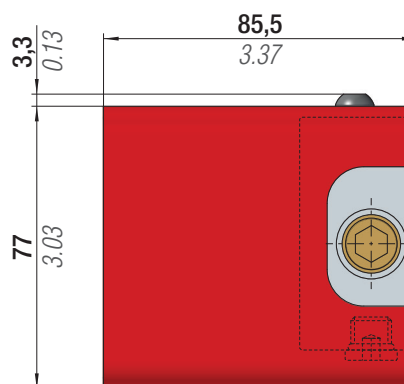
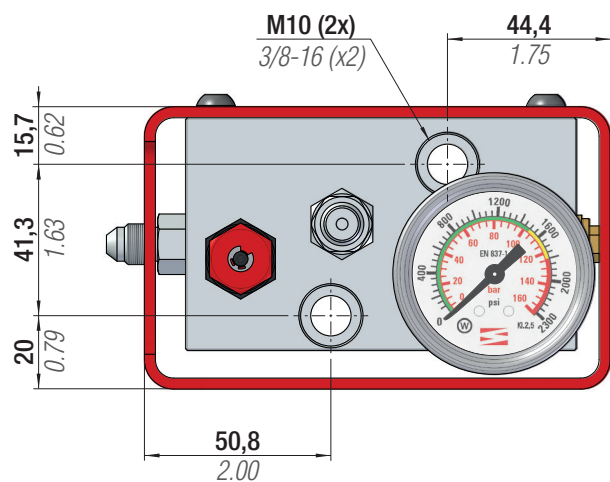
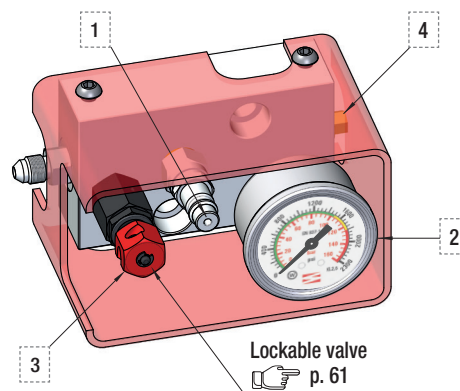
CONTROL PANEL CP25A



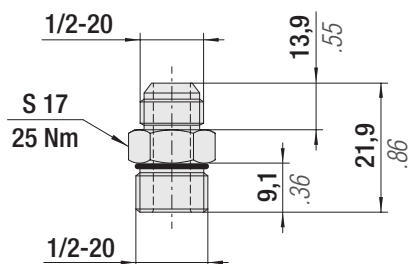
Control panel with aluminum base, equipped with gauge, charging and discharging valve, CE marked over pressure safety plug, JIC37° hose fitting and steel protection. Suitable for hose connection.

Part Number	Pressure Gauge	Rupture Plug	Easy Manifold
39CP25A with 36RPTD01	bar/psi	✓	✗
39CP30A with 36RPTD02	bar/psi	✓	✗

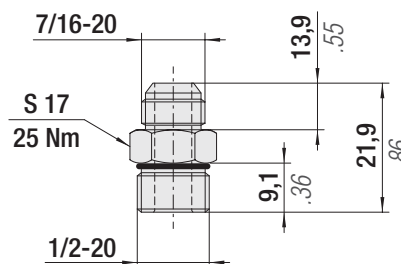
1	Quick coupling for charging Cejn	3	Discharging valve
2	Pressure gauge 0 ÷ 160 bar / 0 ÷ 2300 psi	4	CE marked rupture plug



Part Number 36RPTD01 Panel connections / Hose



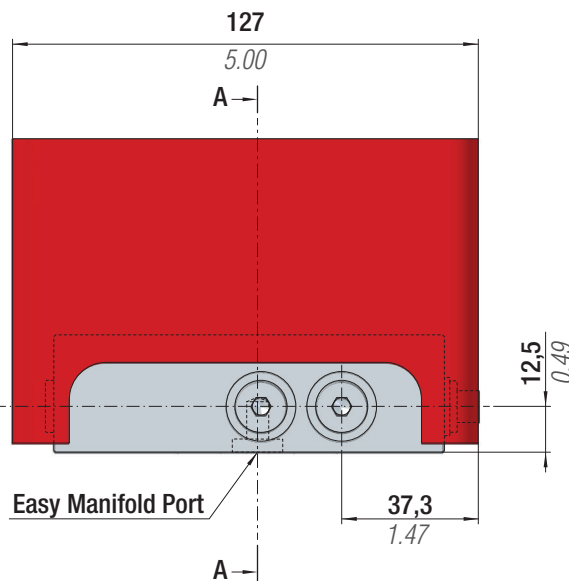
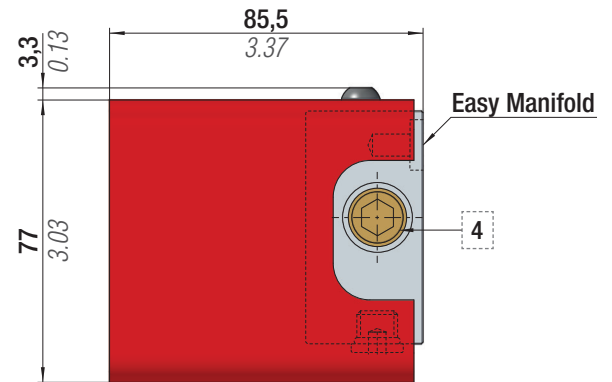
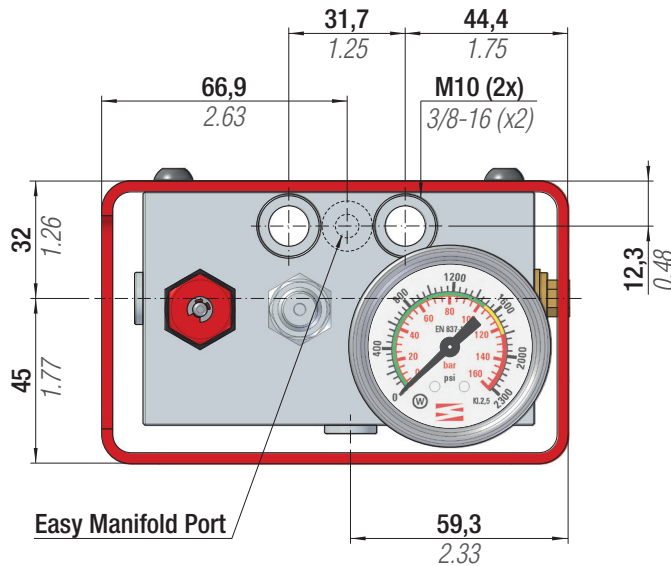
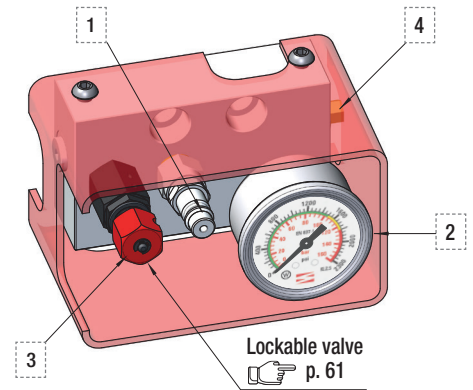
Part Number 36RPTD02 Panel connections / Hose



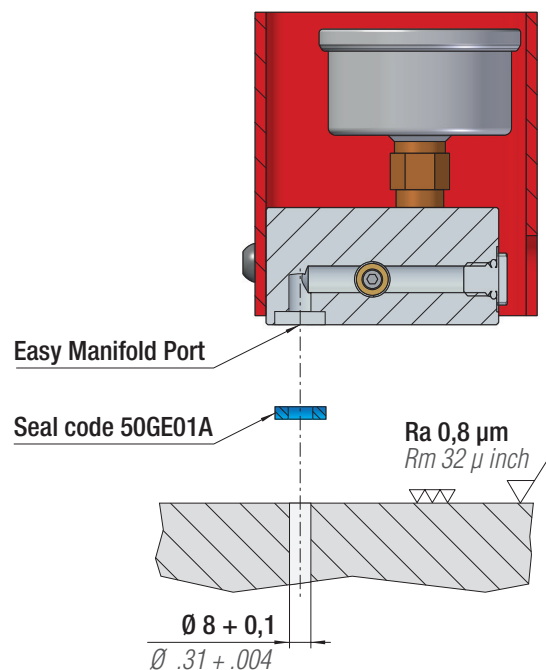
Control panel with aluminum base, equipped with gauge, charging and discharging valve, CE marked over pressure safety plug, steel protection. Designed for easy manifold connection. Additional hose connection is possible.

Part Number	Pressure Gauge	Rupture Plug	Easy Manifold
39CP26A	bar/psi	✓	✓

1	Quick coupling for charging Cejn	3	Discharging valve
2	Pressure gauge 0 ÷ 160 bar / 0 ÷ 2300 psi	4	Over pressure rupture plug



VIEW A-A



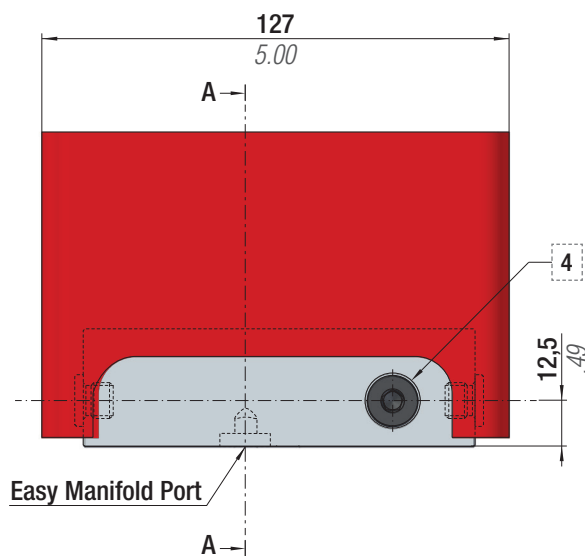
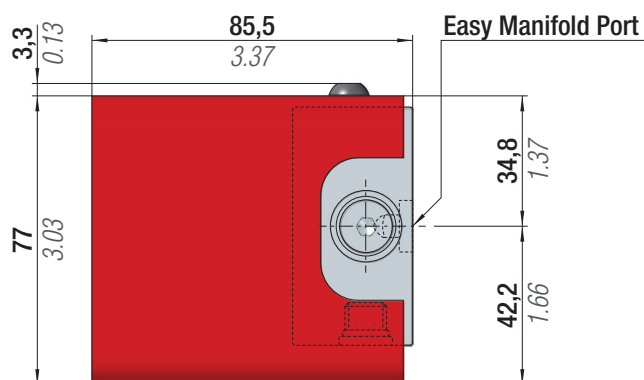
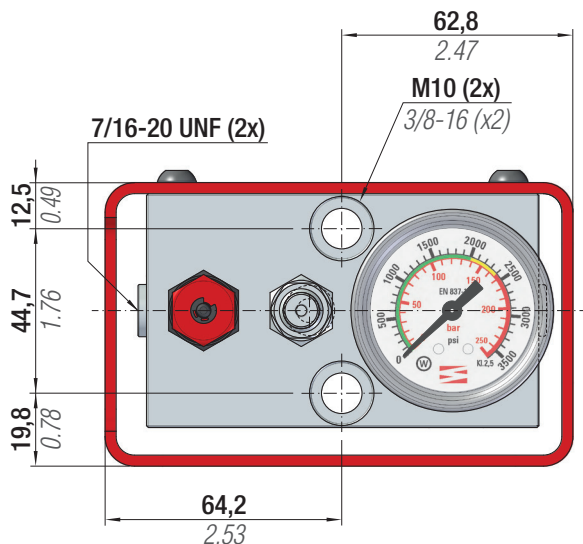
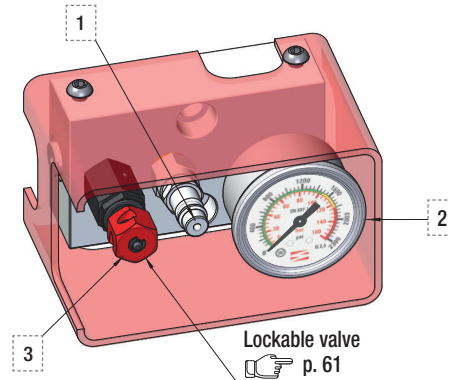
CONTROL PANEL CP27A



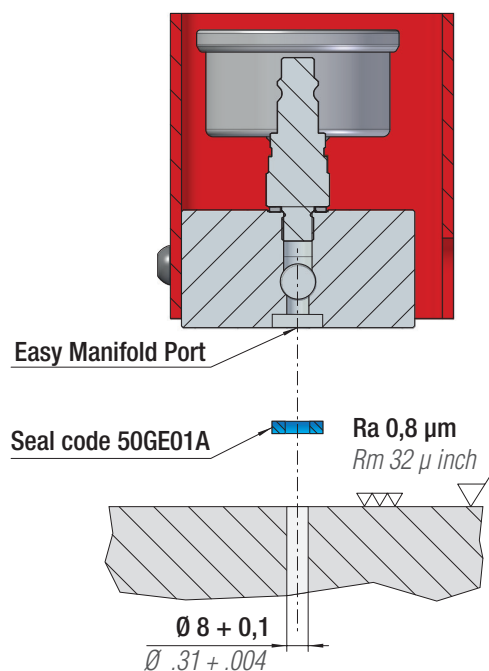
Control panel with aluminum base, equipped with gauge, charging and discharging valve, over pressure rupture plug, steel protection. Designed for easy manifold connection. Additional hose connection is possible.

Part Number	Pressure Gauge	Rupture Plug	Easy Manifold
39CP27A	bar/psi	✓	✓

1	Quick coupling for charging Cejn	3	Discharging valve
2	Pressure gauge 0 ÷ 250 bar / 0 ÷ 3500 psi	4	Over pressure rupture plug



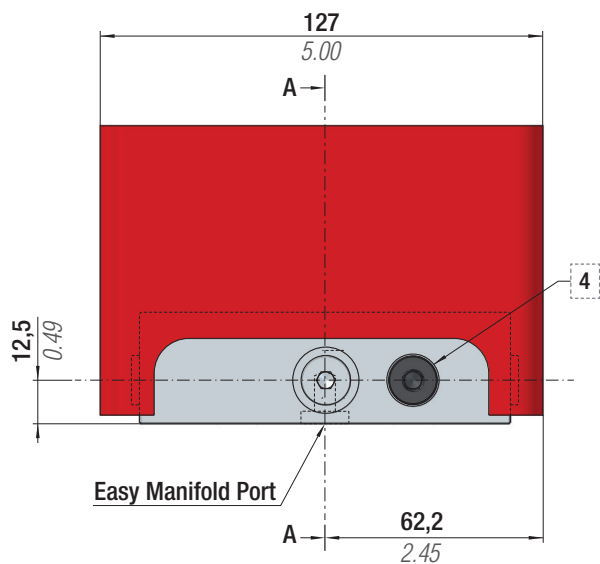
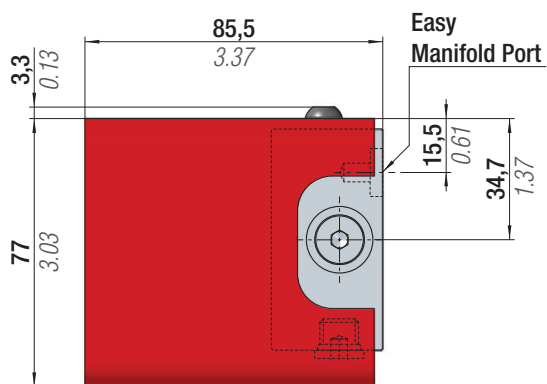
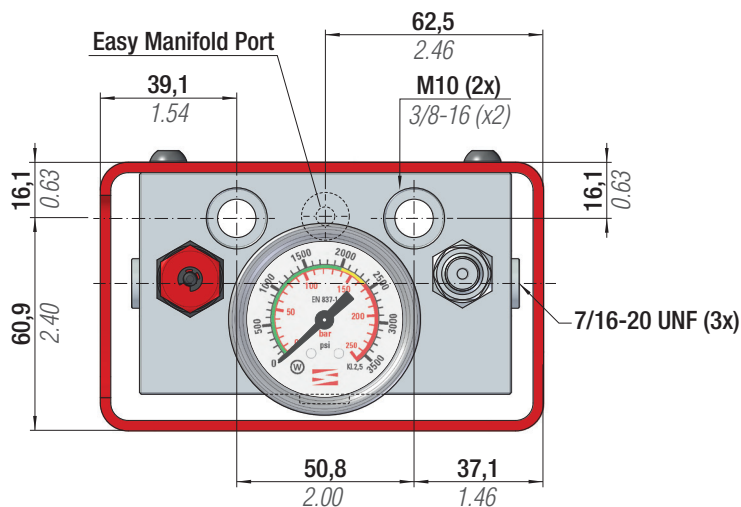
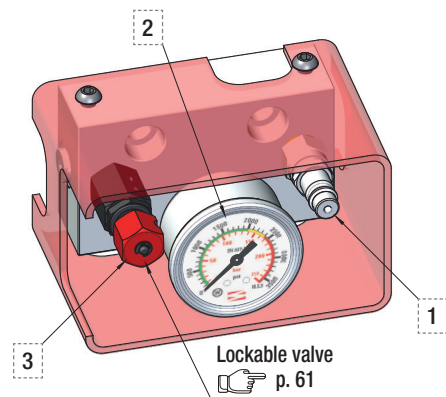
VIEW A-A



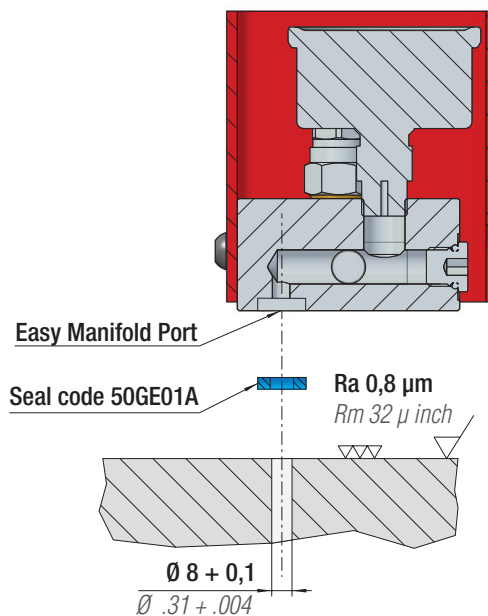
Control panel with aluminum base, equipped with gauge, charging and discharging valve, over pressure rupture plug, steel protection. Designed for easy manifold connection. Additional hose connection is possible.

Part Number	Pressure Gauge	Rupture Plug	Easy Manifold
39CP28A	bar/psi	✓	✓

1	Quick coupling for charging Cejn	3	Discharging valve
2	Pressure gauge 0 ÷ 250 bar / 0 ÷ 3500 psi	4	Over pressure rupture plug



VIEW A-A



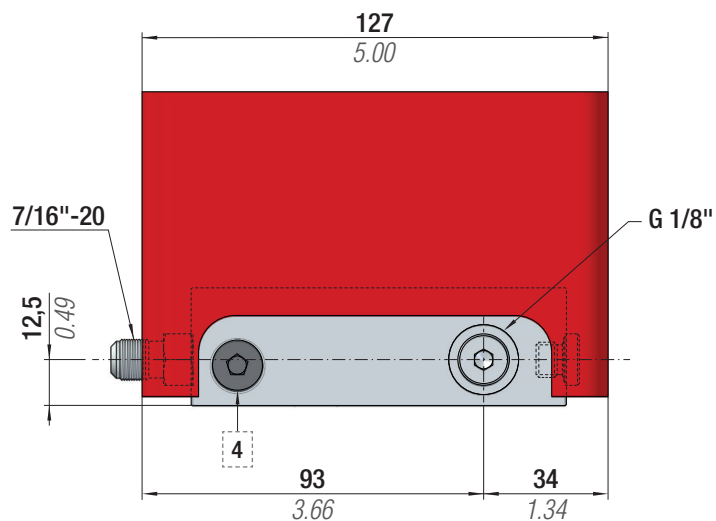
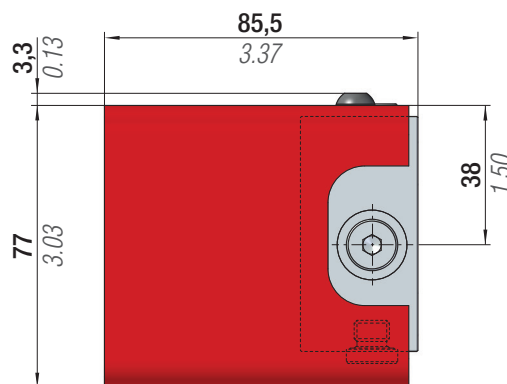
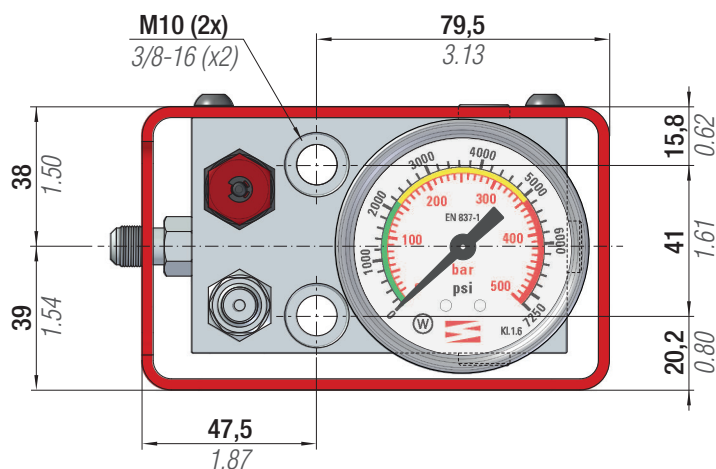
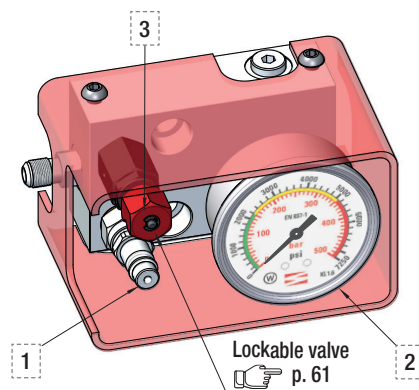
CONTROL PANEL CP29A



Control panel with aluminum base, equipped with gauge, charging and discharging valve, over pressure rupture plug, JIC37° hose fitting and steel protection. Suitable for hose connection.

Part Number	Pressure Gauge	Rupture Plug	Easy Manifold
39CP29A	bar/psi	✓	✗

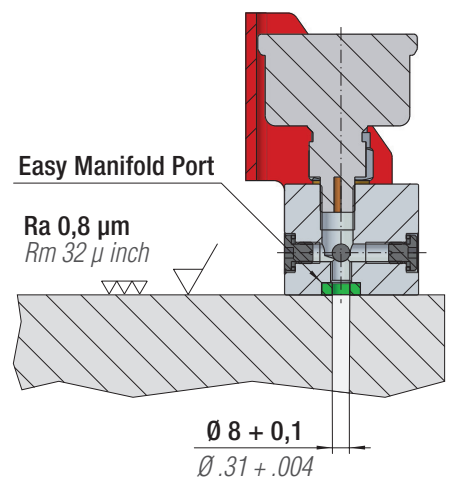
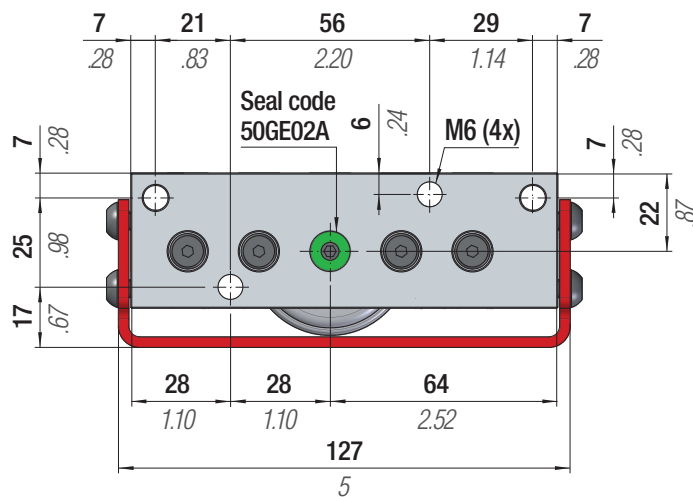
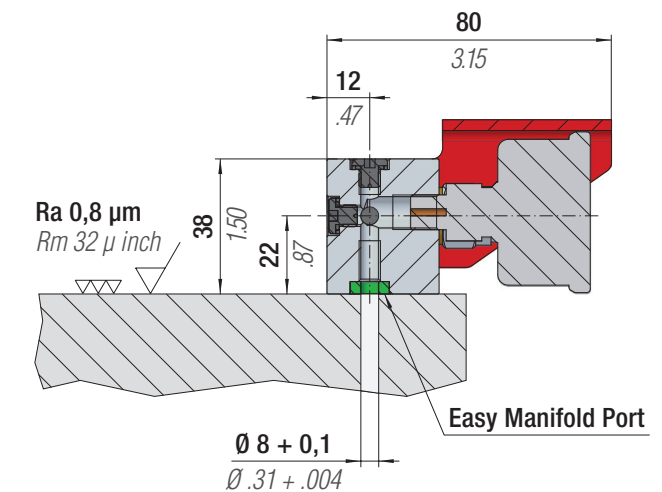
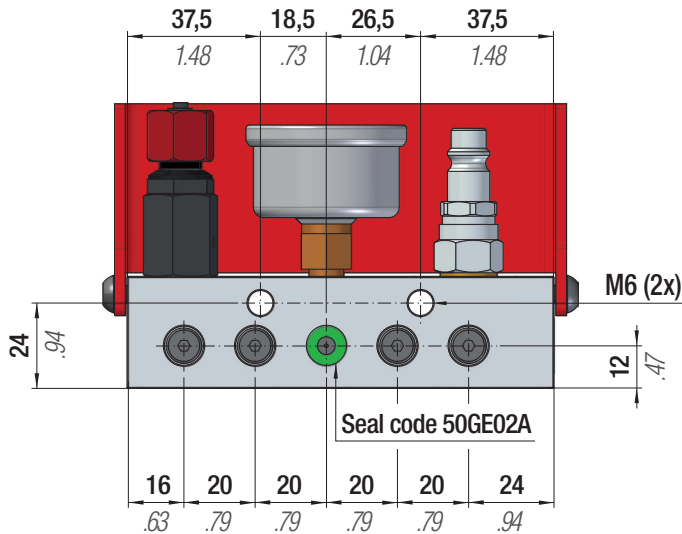
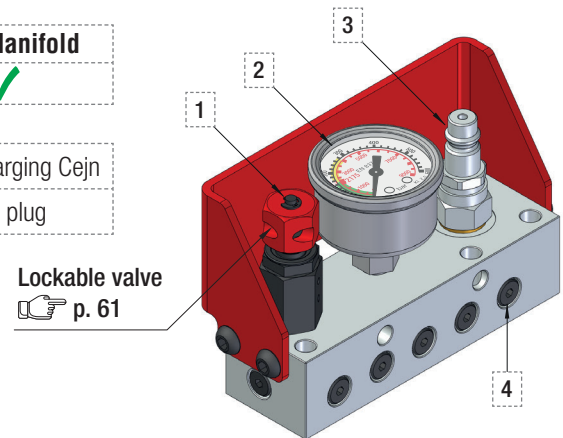
1	Quick coupling for charging Cejn	3	Discharging valve
2	Pressure gauge 0 ÷ 250 bar / 0 ÷ 3500 psi	4	Over pressure rupture plug



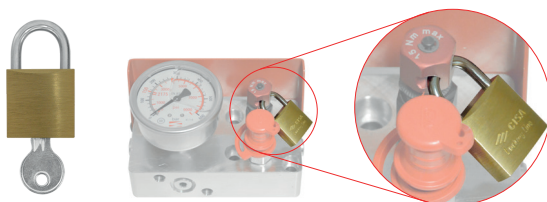
Micro control panel with aluminium base, gauge, charging and discharging valve, overpressure rupture plug and steel protection. Suitable for hose systems equipped with micro hose and micro connections. 16 M6 ports.

Part Number	Pressure Gauge	Rupture Plug	Easy Manifold
39CP01A	bar/psi	✓	✓

1	Discharging valve	3	Quick coupling for charging Cejn
2	Pressure gauge 0÷620 bar / 0÷9000 psi	4	Over pressure rupture plug



Part Number 58UT029A Padlock for discharge valve.

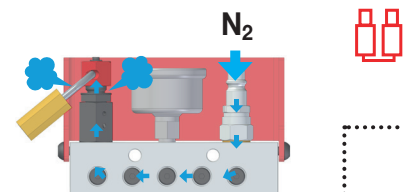


WHY TO USE IT

To prevent **UNauthorized** charging during maintenance.

BENEFITS

Safer maintenance and less accidents.



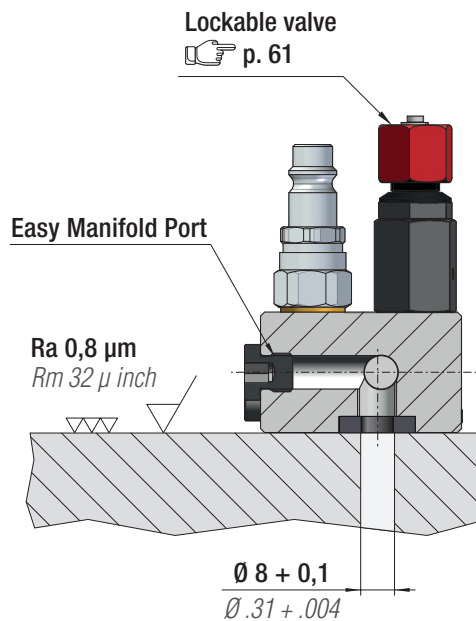
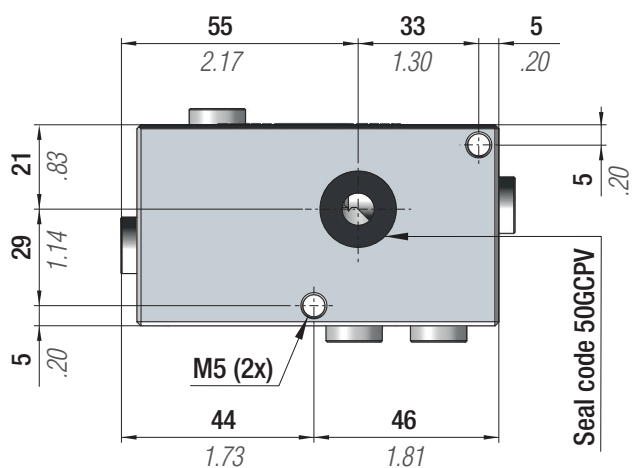
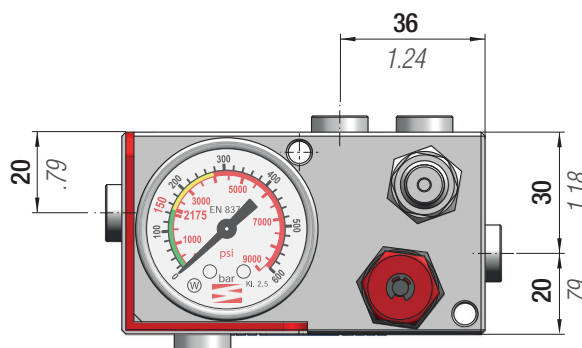
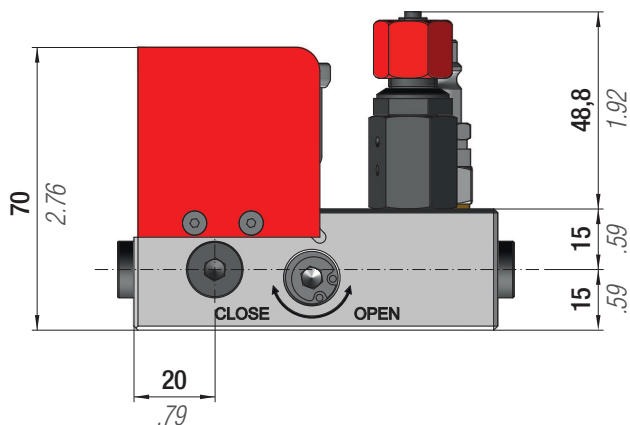
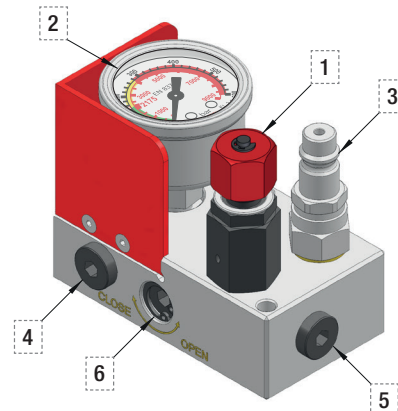
CONTROL PANEL MCPC / CP19A



The Special Springs mini control panel, thanks to its unique miniaturized design, consists of a aluminium block with pressure gauge, charging and discharging valve, 4 outlets, on-off valve and overpressure rupture plug.

Part Number	Pressure Gauge	Rupture Plug	Shut off valve	Easy Manifold
39MCPC	bar/psi	✓	✓	✓
39CP19A	bar/psi	✓	✗	✓

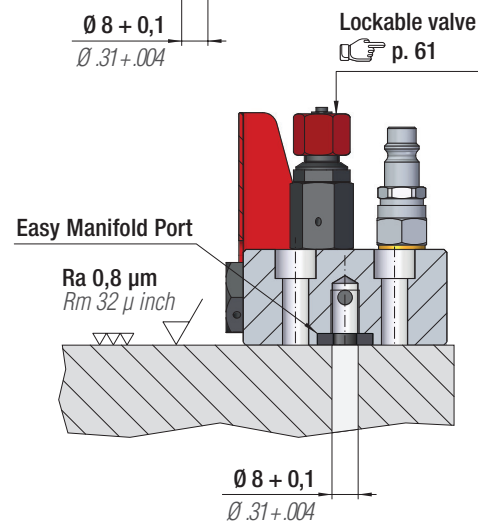
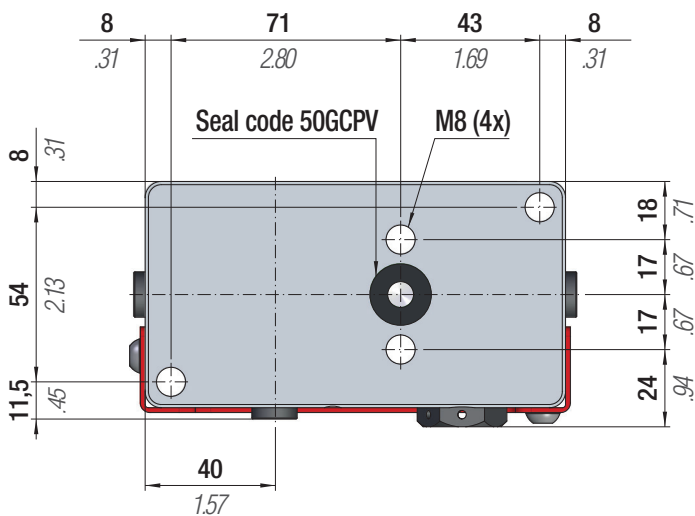
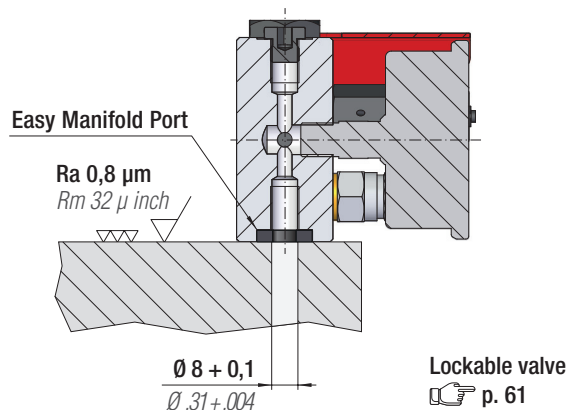
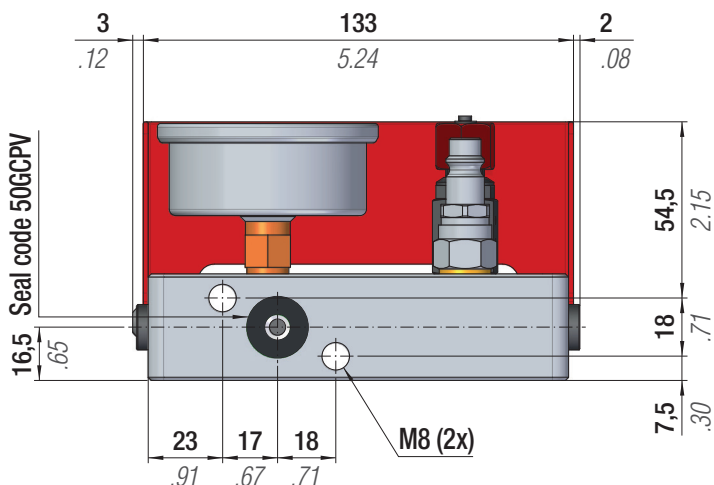
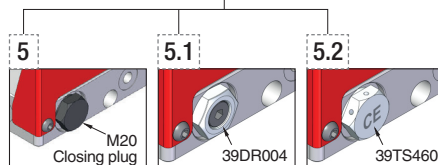
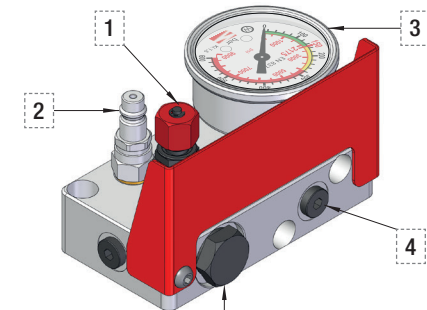
1	Discharging valve	4	Over pressure rupture plug
2	Pressure gauge 0÷620 bar / 0÷9000 psi	5	1/8"G connecting ports (5x)
3	Quick coupling for charging Cejn	6	Shut off valve



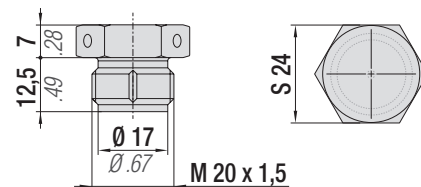
Standard control panel to charge, adjust and check the pressure in the connected system. It consists of a plate with pressure gauge, charging and discharging valve, 3 outlets, steel case and can be equipped with a rupture disc (optional).

Part Number	Pressure Gauge	Rupture Plug	Easy Manifold
39CPVC	bar/psi	✗	✓
39CPVC + 39DR004	bar/psi	✓	✓
39CPVC + 39TS460	bar/psi	✓	✓

1	Discharging valve	5	Closing plug M20
2	Pressure gauge 0÷620 bar / 0÷9000 psi	5.1	Over pressure rupture plug
3	Quick coupling for charging Cejn	5.2	CE marked rupture plug
4	1/8"G connecting ports (4x)		



Part Number 39TS460



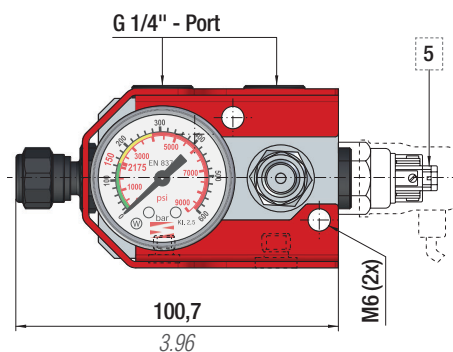
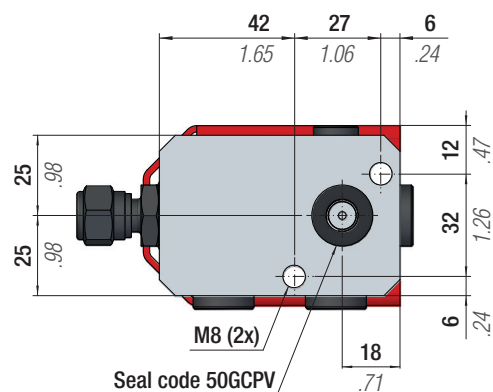
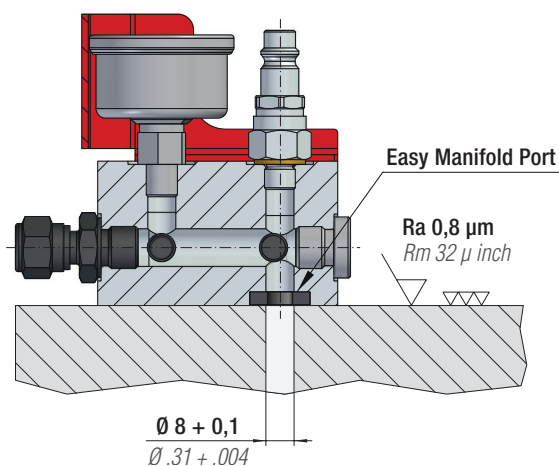
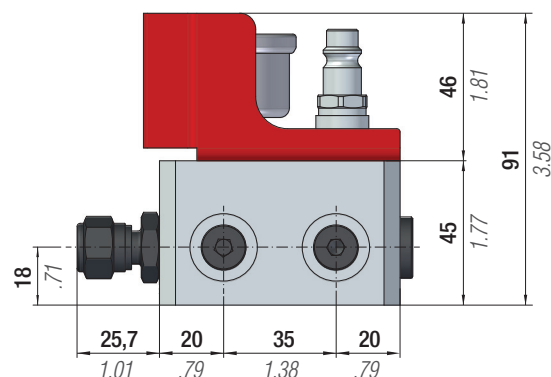
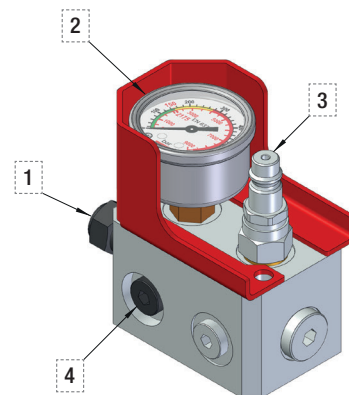
CONTROL PANEL CP07A / CP10A / CP12A



Control panel with aluminium base, equipped with gauge, charging and discharging valve, over pressure rupture plug, steel protection and three 1/4" and one 1/8" gas outlets for hose system managing.

Part Number	Pressure Gauge	Rupture Plug	Pressure Switch	Easy Manifold
39CP07A	bar/psi	✓	✗	✓
39CP10A	bar/psi	✓	✓	✓
39CP12A	bar/psi	✗	✗	✓

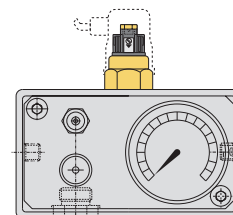
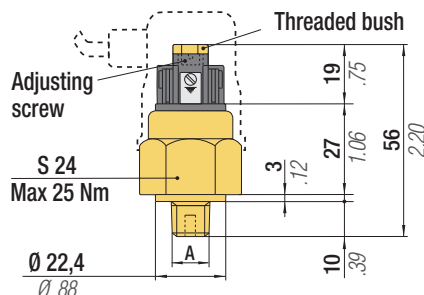
1	Discharging valve	4	Over pressure rupture plug
2	Pressure gauge 0÷620 bar / 0÷9000 psi	5	Pressure Switch 50÷300 bar / 725÷4350 psi
3	Quick coupling for charging Cejn		



PRESSURE SWITCH

Operating voltage 48 V max
Normally opened

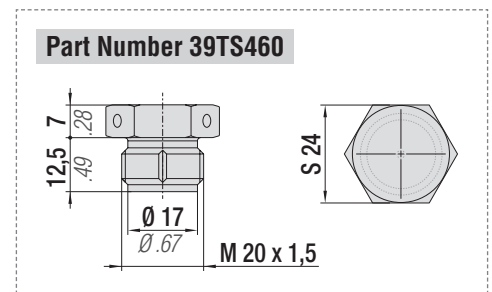
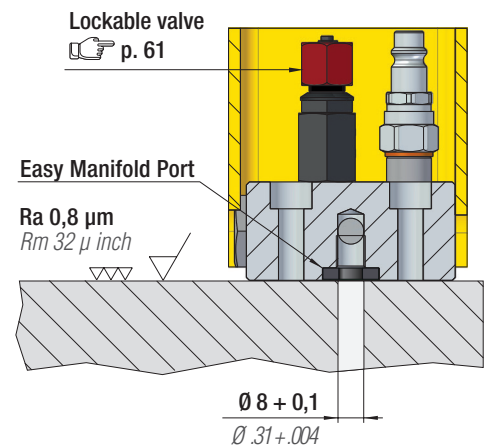
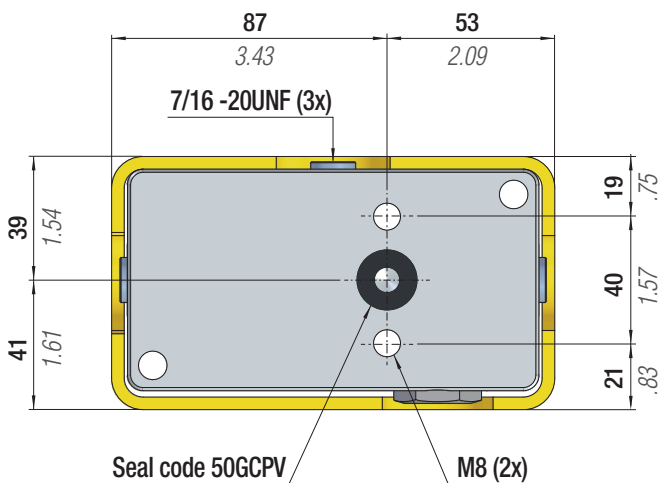
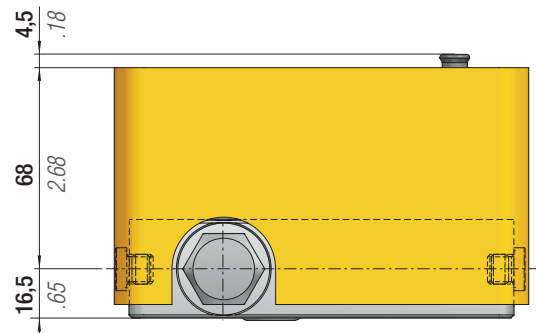
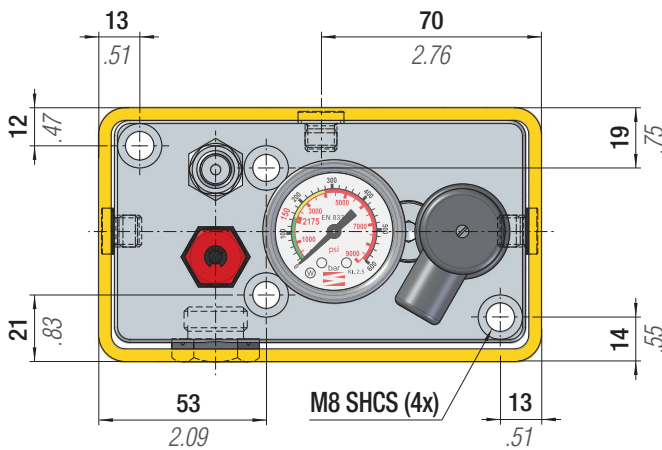
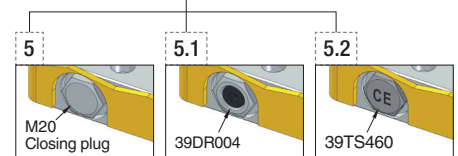
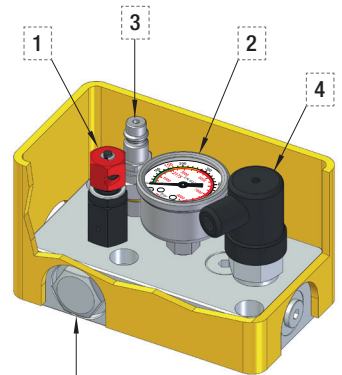
Part Number	A	Range
PMM150A	1/8 " BSPT	50:150 bar
PMM300A	1/8 " BSPT	50:300 bar
PMM150A01	1/4 " BSPT	50:150 bar
PMM300A01	1/4 " BSPT	50:300 bar



Control panel according to Daimler standard. Made of aluminum base. Equipped with pressure gauge, charging and discharging valve, pressure switch and steel protection. Three 7/16-20UNF gas outlets for managing hose system. It can be equipped with over pressure rupture plug.

Part Number	Pressure Gauge	Rupture Plug	Pressure Switch	Easy Manifold
39CP14A	bar/psi	✗	✓	✓
39CP14A + 39DR004	bar/psi	✓	✓	✓
39CP14A + 39TS460	bar/psi	✓	✓	✓

1	Discharging valve	5	Closing plug M20
2	Pressure gauge 0÷620 bar / 0 ÷ 9000 psi	5.1	Over pressure rupture plug
3	Quick coupling for charging Cejn	5.2	CE marked rupture plug
4	Pressure Switch		



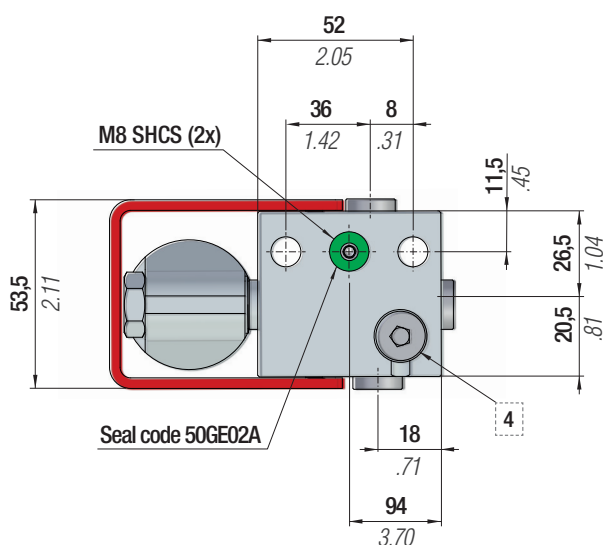
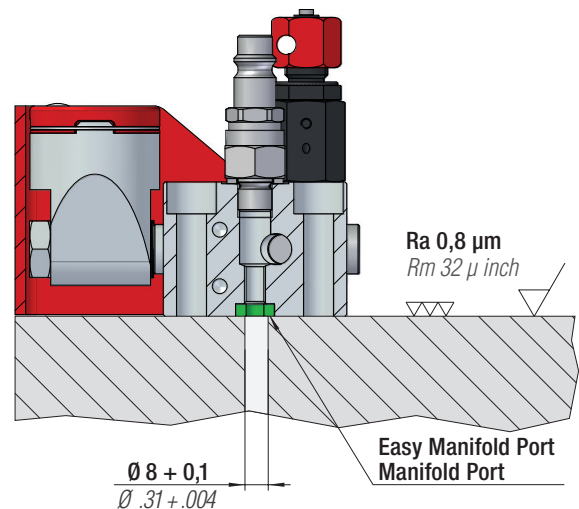
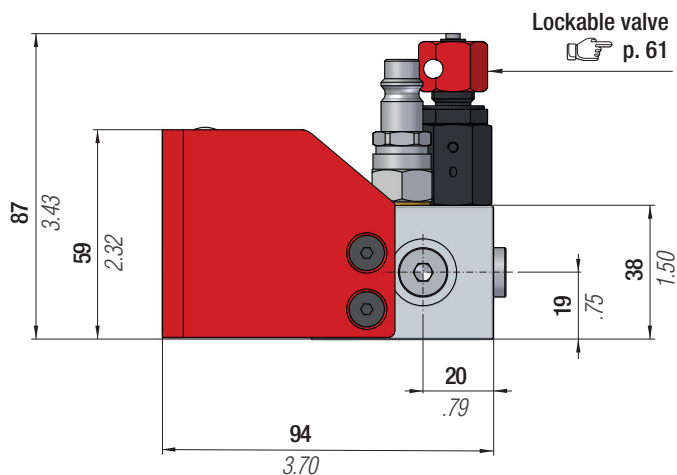
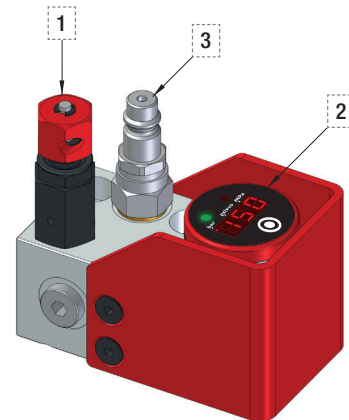
CONTROL PANEL CP23A



Control panel with aluminium base, equipped with pressure sensor EYE, charging and discharging valve, overpressure rupture plug, steel protective cover, Cejn-quick coupling for charging and three G 1/8" ports for managing linked systems.

Part Number	Pressure Gauge	Rupture Plug	Easy Manifold
39CP23A	bar/psi	✓	✗

1	Discharging valve	3	Quick coupling for charging Cejn
2	EYE Pressure Sensor	4	Over pressure rupture plug



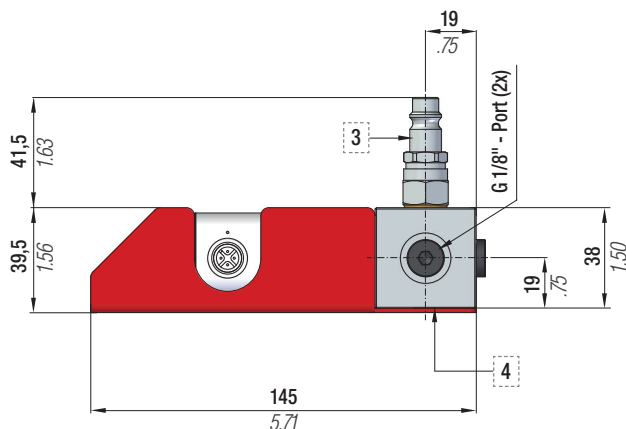
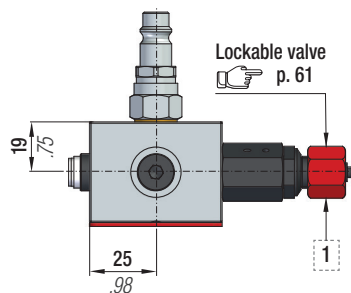
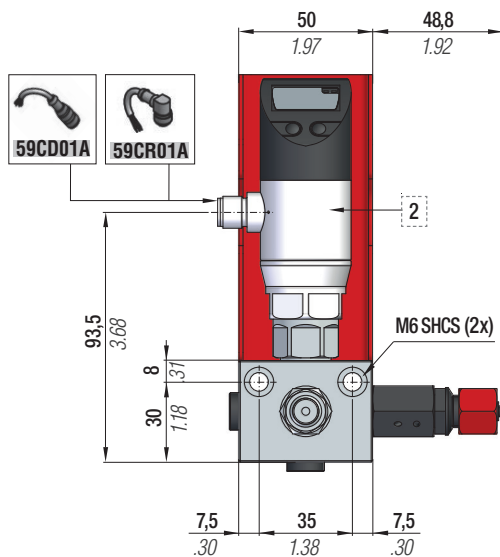
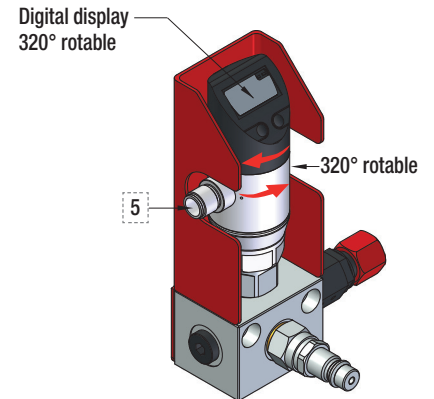
Technical data	
Measuring range	0 ÷ 600 bar / 8700 psi / 60 MPa
Visualization	3 digit display + 2 led
Resolution	1 bar, 10 psi, 1 MPa
Measurement unit	bar, psix10, MPa
Accuracy	±1,0% f.s., ±1 digit whichever is greater
Working temperature	0 ÷ 80°C / 176°F
Compatible fluids	Nitrogen
Battery	Maxell CR2032-3V, 220mAh
Material	Stainless steel/Aluminum alloy
Connection	G1/8"
Alarms	Low pressure (adjustable), High pressure (fixed), Sensor malfunction, Low battery
Battery lifetime	> 2000 readings
Degree of protection	IP65 when connected

CONTROL PANEL CP06A / CP09A

Control panel with aluminium base, equipped with pressure sensor with digital display, charging and discharging valve, over pressure rupture plug, steel protection and two 1/8" gas outlets for hose system managing. By connecting directly the pressure sensor with the Press control unit, it is possible to set a desired working range, outside this value, the controll unit will send an alarm signal.

code	Pressure Gauge	Rupture Plug	Easy Manifold	59CD01A	59CR01A
39CP06A	bar/psi	✓	✗	✓	✗
39CP09A	bar/psi	✓	✗	✗	✓

1	Discharging valve	4	Over pressure rupture plug
2	Pressure gauge 0÷600 bar / 0 ÷ 8700 psi	5	Electrical connector
3	Quick coupling for charging Cejn		



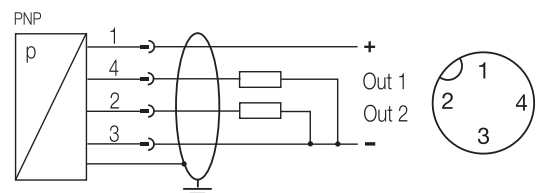
Technical data	
Electrical connector type	M12x1 - Male (4-pin)
Pressure connection	G 1/4" DIN 3852
Nominal pressure	0 - 600 bar
Burst pressure	1100 bar
Operating voltage U _o	18...36 V DC
Output current max.	500 mA
No-load supply current I _o max	≤ 50 mA
Switching frequency f	200 Hz
Temperature range	- 25°C... + 85°C
Degree of protection as per IEC 60529	IP67 when connected
Output: digital data (switching points only) 2xPNP, NO/NC selection	

Always depressurize and disconnect pressure sensors from the power supply before establishing an electrical connection.



Electrical connections	Sensors with switching output	Wire connections color
Supply +	1	Brown
Supply -	3	Blue
Signal +	-	White
Switching output 1	4	Black
Switching output 2	2	-
Shield	Connector housing	-

Sensor circuit diagram with 2 switching outputs



COMPENSATION TANKS



Manifold plates can be connected to an external compensation tank. The main purpose is to contain the pressure increase in the system within the predetermined limits when the press lowers. Special Springs offers five different sizes of compensation tanks.

To determine the size of the required compensation tank, it is necessary to calculate the Moved Volume (1) that is the volume of gas pushed by the cylinders during its working stroke considering the pressure increase (2) caused by the closing action of the press.

1) $MV = n \cdot Cu \cdot S$

MV = Moved Volume

Cu = Work stroke of Manifold gas springs

n = Number of Manifold gas springs

S = Effective piston area of Manifold gas springs

2) $Vp = SV \cdot \frac{100\%}{\% Pr}$

Vp = Compensation Volume

Pr = Pressure rise



- The system pressure at closed die must not exceed the pressure limits set by the designer.
- The maximum loading pressure is P = 2175 psi / 150 bar while the working pressure is P = 300 bar.

Example: CRD 3000-2.00A

$SV = 8 \cdot 1.75 \text{ inch} \cdot 3.44 \text{ inch}^2$

$N = 8$

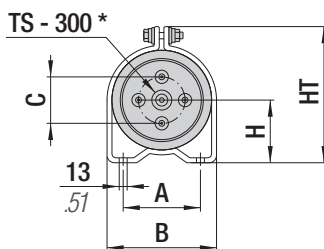
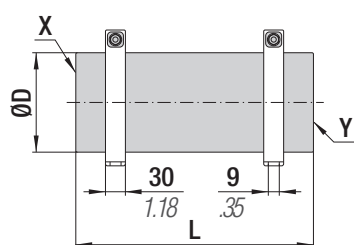
$S = 3.44 \text{ inch}^2$

$Vp = 48.16 \text{ inch}^3 \cdot \frac{100\%}{10\%} = 481.6 \text{ inch}^3$

$Cu = 1.75 \text{ inch}$

$Pr = 10\%$

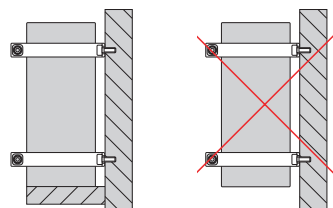
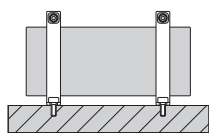
The required compensation volume is 481.6 inch³, the suitable compensation tank is 39PC008A.



*All Special Springs compensation tanks are fitted with CE marked overpressure safety plug

PART NUMBER	Ø D		L		A		H		HT		B		X SIDE	Y SIDE	C		FITTINGS	VOLUME		PED 2014/68/EU
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm			inch	mm		in ³	cm ³	
39PC001A	3.94	100	11.42	290	3.54	90	2.28	58	5.51	140	4.20	125	G1/8" (3x)	G1/8" (4x)	1.57	40	RTC RMTC RSMPTD	61.02	1000	✓
39PC003A	5.91	150	12.20	310	5.35	136	3.27	83	7.48	190	6.77	172	G1/8" (4x)	G1/8" (4x)	2.76	70		183.07	3000	✓
39PC005A	5.91	150	18.70	475	5.35	136	3.27	83	7.48	190	6.77	172	G1/8" (4x)	G1/8" (4x)	2.76	70		305.12	5000	✓
39PC008A	7.87	200	16.34	415	8.35	212	4.25	108	9.53	242	9.92	252	G1/8" (6x)	G1/8" (6x)	3.82	97		488.18	8000	✓
39PC010A	7.87	200	19.88	505	8.35	212	4.25	108	9.53	242	9.92	252	G1/8" (6x)	G1/8" (6x)	3.82	97		607.79	9960	✓

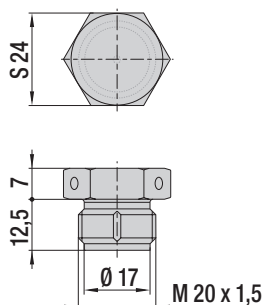
Example:



CE marked overpressure safety plug

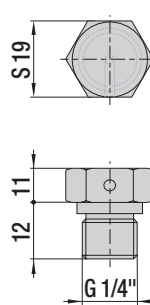
Part Number 39TS300

(300 bar)



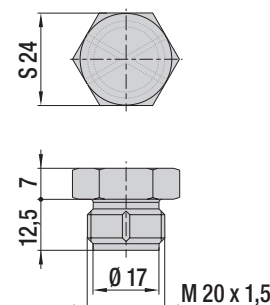
Part Number 39TS360

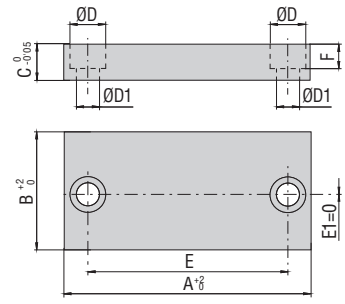
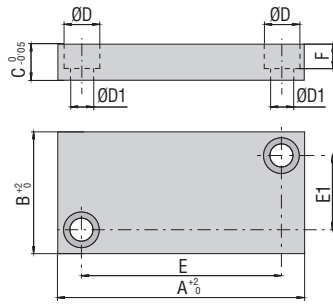
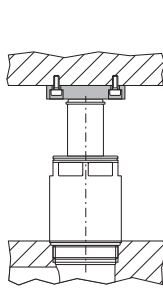
(360 bar)



Part Number 39TS460

(460 bar)



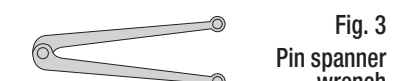
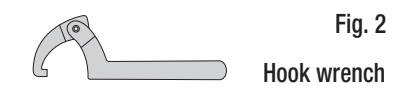
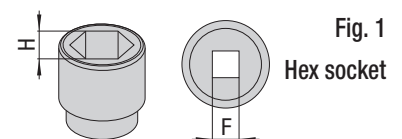


PART NUMBER	A		B		C		Ø D		Ø D1		E		E1		F			
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		
39PA040040A ¹⁾⁵⁾	1.57	40	1.57	40	0.59	15	0.59	15	0.35	9	0.83	21	0.83	21	0.39	10	d ≤ 0.79	d ≤ 20
39PAB040040A ⁴⁾⁷⁾	1.57	40	1.57	40	0.47	12	0.43	11	0.28	7	0.94	24	0.94	24	0.28	7	d ≤ 0.79	d ≤ 20
39PAA040040A	1.57	40	1.57	40	0.59	15	0.43	11	0.28	7	0.94	24	0.94	24	0.28	7	d ≤ 0.79	d ≤ 20
39PA056056A ³⁾⁵⁾	2.20	56	2.20	56	0.79	20	0.71	18	0.43	11	1.26	32	1.26	32	0.51	13	d ≤ 1.42	d ≤ 36
39PA060060A ⁴⁾⁷⁾	2.36	60	2.36	60	0.59	15	0.59	15	0.35	9	1.57	40	1.57	40	0.35	9	d ≤ 1.42	d ≤ 36
39PAA060060A ⁶⁾	2.36	60	2.36	60	0.47	12	0.55	14	0.35	9	1.5	38	1.5	38	0.35	9	d ≤ 1.42	d ≤ 36
39PA070070A ¹⁾⁴⁾⁷⁾	2.76	70	2.76	70	0.59	15	0.59	15	0.35	9	1.97	50	1.97	50	0.35	9	d ≤ 2.36	d ≤ 60
39PA071071A ⁵⁾	2.80	71	2.80	71	0.79	20	0.71	18	0.43	11	1.89	48	1.89	48	0.51	13	d ≤ 2.36	d ≤ 60
39PA080080A ²⁾	3.15	80	3.15	80	0.63	16	0.59	15	0.35	9	2.44	62	0	0	0.39	10	d ≤ 2.56	d ≤ 65
39PAB090090A	3.54	90	3.54	90	0.47	12	0.59	15	0.35	9	2.52	64	2.52	64	0.35	9	d ≤ 3.15	d ≤ 80
39PAA090090A ¹⁾	3.54	90	3.54	90	0.59	15	0.59	15	0.35	9	2.76	70	2.76	70	0.35	9	d ≤ 3.15	d ≤ 80
39PA090090A ²⁾³⁾⁵⁾	3.54	90	3.54	90	0.79	20	0.71	18	0.43	11	2.64	67	2.64	67	0.51	13	d ≤ 3.15	d ≤ 80
39PAC090090A ⁶⁾	3.54	90	3.54	90	0.47	12	0.55	14	0.35	9	2.76	70	2.76	70	0.35	9	d ≤ 3.15	d ≤ 80
39PA100100A ²⁾	3.94	100	3.94	100	0.63	16	0.59	15	0.35	9	3.23	82	0	0	0.39	10	3.54	d ≤ 90
39PAA100100A ⁴⁾⁷⁾	3.94	100	3.94	100	0.79	20	0.71	18	0.43	11	2.91	74	2.91	74	0.43	11	3.54	d ≤ 90
39PAB100100A ⁶⁾	3.94	100	3.94	100	0.47	12	0.55	14	0.35	9	3.19	81	3.19	81	0.35	9	3.54	d ≤ 90
39PAA140140A ⁴⁾	5.51	140	5.51	140	0.79	20	0.71	18	0.43	11	4.33	110	4.33	110	0.43	11	5.12	d ≤ 130
39PA140140A ³⁾⁵⁾	5.51	140	5.51	140	0.79	20	0.71	18	0.43	11	4.33	110	4.33	110	0.51	13	5.12	d ≤ 130
39PA050025A ¹⁾⁵⁾	1.97	50	0.98	25	0.47	12	0.43	11	0.28	7	1.26	32	0.31	8	0.31	8	0.59	d ≤ 15
39PA050030B ⁵⁾	1.97	50	1.18	30	0.47	12	0.43	11	0.28	7	1.38	35	0.55	14	0.28	7	0.79	d ≤ 20
39PA055030A ¹⁾	2.17	55	1.18	30	0.47	12	0.43	11	0.28	7	1.57	40	0.55	14	0.31	8	0.79	d ≤ 20
39PA055032A ²⁾	2.17	55	1.26	32	0.63	16	0.59	15	0.35	9	1.46	37	0	0	0.39	10	0.79	d ≤ 20
39PA065050A ²⁾	2.56	65	1.97	50	0.63	16	0.59	15	0.35	9	1.85	47	0	0	0.39	10	1.42	d ≤ 36
39PA070035A ¹⁾⁵⁾	2.76	70	1.38	35	0.59	15	0.59	15	0.35	9	1.89	48	0.55	14	0.39	10	1.18	d ≤ 30
39PA075050A ¹⁾⁵⁾	2.95	75	1.97	50	0.59	15	0.59	15	0.35	9	2.2	56	1.18	30	0.39	10	1.42	d ≤ 36
39PA080060A ²⁾	3.15	80	2.36	60	0.63	16	0.59	15	0.35	9	2.44	62	0	0	0.39	10	2.17	d ≤ 55
39PAA085060A ⁵⁾	3.35	85	2.36	60	0.59	15	0.59	15	0.35	9	2.2	56	1.57	40	0.39	10	2.17	d ≤ 55
39PA085060A ¹⁾	3.35	85	2.36	60	0.59	15	0.59	15	0.35	9	2.6	66	1.57	40	0.39	10	2.17	d ≤ 55
39PA100080A ¹⁾⁵⁾	3.94	100	3.15	80	0.79	20	0.71	18	0.43	11	2.83	72	2.2	56	0.47	12	2.76	d ≤ 70
39PA110100A ⁵⁾	4.33	110	3.94	100	0.79	20	0.71	18	0.43	11	3.35	85	2.95	75	0.47	12	3.94	d ≤ 100

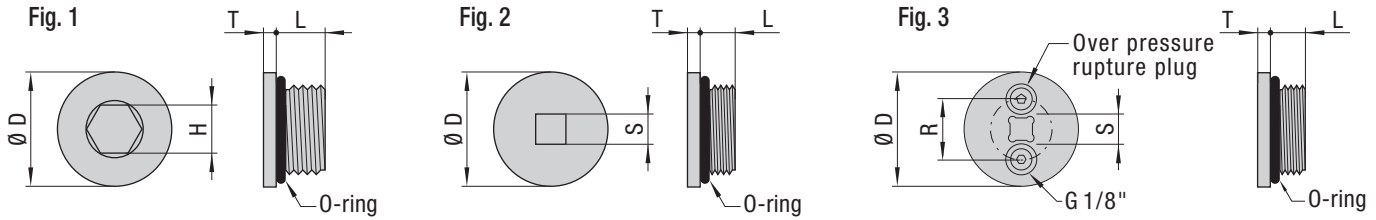
1) VDI 3003 2) Volvo 3) Renault 4) Volkswagen 5) FCA 6) Mercedes Benz 7) BMW

SERVICE TOOLS

PART NUMBER	FIG.	H		F		MANIFOLD CYLINDER PART NUMBER
		inch	mm	inch	mm	
58UT044A	1	1.50	38,0	0.75	19,1	CR 750 / CRD 750
58UT045A	1	1.97	50,0	0.75	19,1	CR 1500 / CRD 1500
58UT046A	1	2.56	65,0	1.00	25,4	CR 3000 / CRD 3000
58UT047A	1	3.23	82,0	1.00	25,4	CR 5000 / CRD 5000 / CR 5200
58UT048A	1	3.94	100,0	1.00	25,4	CR 8000 / CRD 8000 / CR 7700
58UT049A	1	4.72	120,0	2.50	63,5	CR 10700
58UT050A	2	-	-	-	-	CC 500
58UT051A	2	-	-	-	-	CC 1000 / CB 1000 / CC 2500 / CB 2500
58UT054A	3	-	-	-	-	CA 2500 / CC 500 / CC 1000 CB 1000 / CC 2500 / CB 2500

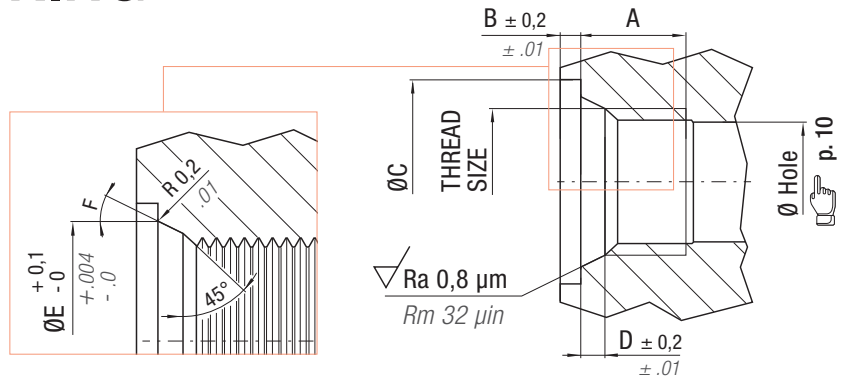


PORT PLUGS



PART NUMBER	FIG.	THREAD SIZE	O-RING (ONLY FOR REPLACEMENT)	H		Ø D		T		L		S		R		TOOL NEEDED
				inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
39TM001A	1	7/16-20 UNF	500RNE16A	0.19	4,80	0.50	12,6	0.09	2,3	0.36	9,2	-	-	-	-	3/16 Hex Head Allen Wrench
39TM002A	1	1/2-20 UNF	500R1501050	0.19	4,80	0.56	14,2	0.09	2,3	0.36	9,2	-	-	-	-	3/16 Hex Head Allen Wrench
39TM003A	1	3/4-16 UNF	500RIA01600	0.31	7,95	0.83	21,1	0.11	2,9	0.44	11,1	-	-	-	-	5/16 Hex Head Allen Wrench
39TM004A	1	7/8-14 UNF	500R2001900	0.38	9,55	0.96	24,4	0.13	3,3	0.50	12,8	-	-	-	-	3/8 Hex Head Allen Wrench
39TM005A	1	1 1/16-12 UNF	500R2502300	0.56	14,30	1.16	29,4	0.15	3,9	0.60	15,2	-	-	-	-	9/16 Hex Head Allen Wrench
39TM006A	1	1 -3/16-12 UNF	500R2502700	0.56	14,30	1.29	32,8	0.15	3,9	0.60	15,2	-	-	-	-	9/16 Hex Head Allen Wrench
39TM007A	1	1 5/16-12 UNF	500R2503000	0.63	15,90	1.42	36,1	0.15	3,9	0.60	15,3	-	-	-	-	5/8 Hex Head Allen Wrench
39TM008A	2	1 5/8-12 UNF	500R3003800	-	1.88	48,0	0.16	4,0	0.59	15,0	0.50	12,7	-	-	-	1/2 Sq. Drive Wrench
39TM009A	2	1 7/8-12 UNF	500R9364	-	2.12	54,0	0.16	4,0	0.59	15,0	0.50	12,7	-	-	-	1/2 Sq. Drive Wrench
39TM010A	2	M47x2	500R9364	-	2.12	54,0	0.16	4,0	0.59	15,0	0.50	12,7	-	-	-	1/2 Sq. Drive Wrench
39TM011A	3	2 1/2-12 UNF	500R9427	-	2.75	70,0	0.16	4,0	0.59	15,0	0.50	12,7	1.46	37	-	1/2 Sq. Drive Wrench
39TM012A	3	M63x2	500R9427	-	2.75	70,0	0.16	4,0	0.59	15,0	0.50	12,7	1.46	37	-	1/2 Sq. Drive Wrench
39TM013A	3	M82x2	500R3507800	-	3.50	89,0	0.25	6,0	0.75	19,0	0.75	19,1	1.97	50	-	3/4 Sq. Drive Wrench
39TM014A	3	M100x2	500R1016301	-	4.25	108,0	0.25	6,0	0.75	19,0	0.75	19,1	2.36	60	-	3/4 Sq. Drive Wrench

PORT MANUFACTURING



THREAD SIZE	Ø Hole		A		B		Ø C		D		Ø E		F
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
7/16-20 UNF	0.375	9,53	0.551	14,0	0.13	3,3	0.54	13,6	0.093	2,36	0.487	12,36	12°
1/2-20 UNF	0.438	11,13	0.551	14,0	0.13	3,3	0.60	15,2	0.093	2,36	0.550	13,97	12°
3/4-16 UNF	0.656	16,60	0.630	16,0	0.15	3,9	0.87	22,1	0.100	2,54	0.811	20,59	15°
7/8-14 UNF	0.750	19,05	0.709	18,0	0.17	4,3	1.00	25,4	0.100	2,54	0.942	23,92	15°
1 1/16-12 UNF	0.938	23,83	0.787	20,0	0.19	4,9	1.20	30,4	0.130	3,30	1.148	29,15	15°
1 -3/16-12 UNF	1.062	26,97	0.132	20,0	0.19	4,9	1.33	33,8	0.132	3,30	1.273	32,33	15°
1 5/16-12 UNF	1.188	30,18	0.787	20,0	0.19	4,9	1.46	37,1	0.130	3,30	1.398	35,50	15°
1 5/8-12 UNF	1.500	38,10	0.787	20,0	0.20	5,0	1.93	49,0	0.132	3,35	1.713	43,51	15°
1 7/8-12 UNF	1.750	44,45	0.787	20,0	0.20	5,0	2.17	55,0	0.132	3,35	1.962	49,83	15°
M47x2	1.750	44,45	0.787	20,0	0.20	5,0	2.17	55,0	0.138	3,50	1.976	50,20	15°
2 1/2-12 UNF	2.375	60,33	0.787	20,0	0.20	5,0	2.80	71,0	0.132	3,35	2.587	65,70	15°
M63x2	2.340	59,44	0.787	20,0	0.20	5,0	2.80	71,0	0.138	3,50	2.583	65,60	15°
M82x2	3.094	78,59	0.945	24,0	0.28	7,0	3.54	90,0	0.173	4,40	3.335	84,70	15°
M100x2	3.750	95,25	0.945	24,0	0.28	7,0	4.29	109,0	0.173	4,40	4.041	102,65	15°



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