

7MPa

Hole Clamp

Expansion model

model **CGH**



PATENT PEND.

Pascal
corporation

www.pascaleng.co.jp

PAMPHLET PA-104E REV.4 2006.12

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Expansion model

model **CGH**

Flat Surface Gripping

Adoption of flat surface at contact area ensures clamping force and enhances durability.

Special Steel Gripper

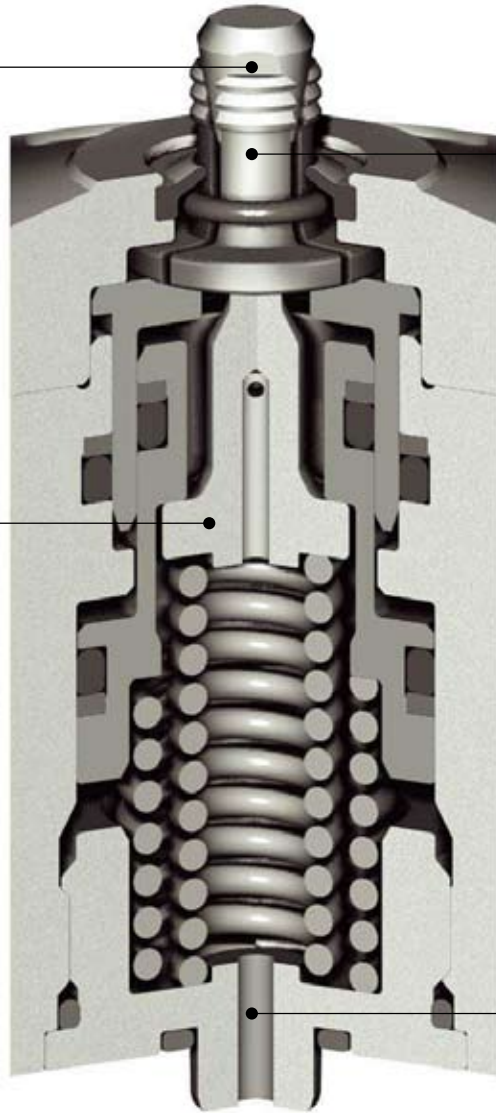
Bears superior anti-friction feature for durability. Replaceable.

Auto Position offset

Flexible structure of rod offsets pitch errors of holes for smooth change of workpiece/pallet. See Allowable Eccentricity specified in the table below.

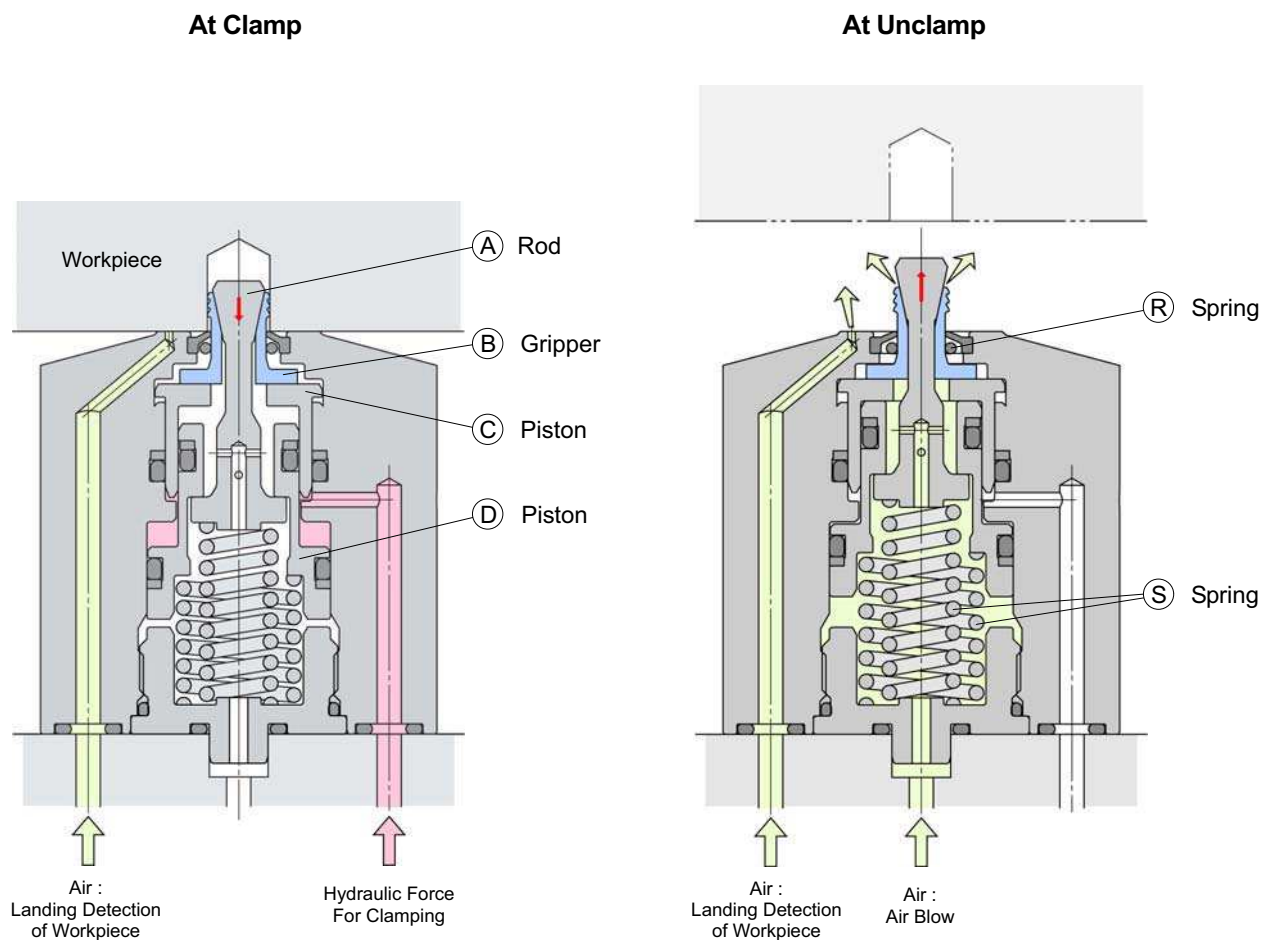
Landing Detection & Air Blow

Equipped with air circuit for landing detection of workpiece. Air blow circuit to prevent intrusion of coolant and chips entering inside the body is also equipped with.



Model	CGH01					CGH02		
	06	07	08	09	10	11	12	13
Working Pressure Range	4 ~ 7 MPa			4 ~ 10 MPa				
Clamping force (at 7MPa) # 1	0.85 kN					1.69 kN		

#1 At standard hole diameter.



When the cylinder is actuated, piston D and rod A go down. Meanwhile, gripper B is held at the ceiling of the cylinder by piston C until the hydraulic pressure reaches at 1.5MPa, and it is radiated outward to be pressed to the inner face of the clamp hole by the descending rod A. When the pressure reaches at 1.5MPa, gripper B starts going down with rod A by pulling down the workpiece until it contacts to the landing surface to position Z axis for secure clamping. At unclamping, spring S pushes piston D, rod A & piston C upward. Ring R returns gripper B to the center position.

Hole Clamp System (combined with Location model)

Location model A	Expansion model	Location model B
XY axes positioning	Z axis positioning	θ axis positioning

Workpiece

Plate

There are the hole clamps with different positioning function available with Pascal. As shown in the diagram above, the workpiece can be surely positioned and clamped in combination with the hole clamps of location model. Ask us for the information of location models.

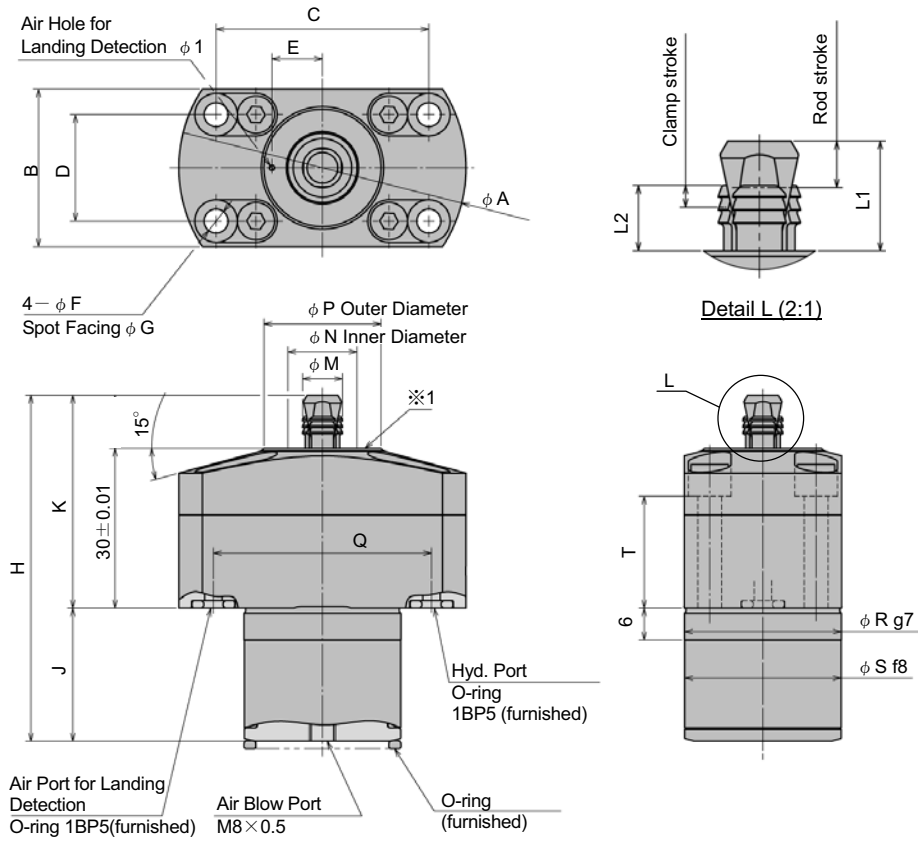
For Light Duty / Multi-face Machining

Expansion model

Location model

Dimensions

CGH 0 ① - ② F Flange Type



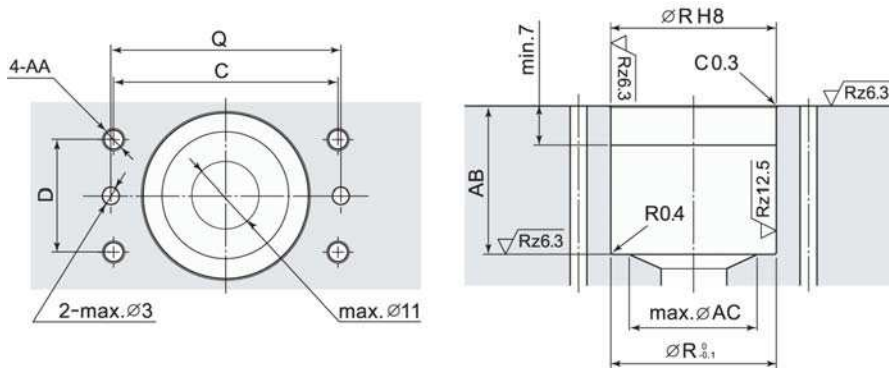
Dimensions

MODEL	CGH01-				
	06	07	08	09	10
M	5.5	6.5	7.5	8.5	9.5
N	11	12	13	14	15

MODEL	CGH02-		
	11	12	13
M	10.5	11.5	12.5
N	16	17	18

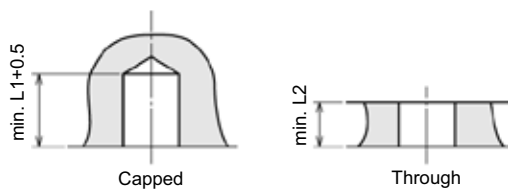
MODEL	CGH01-					CGH02-		
	06	07	08	09	10	11	12	13
A	54					63		
B	29.6±0.1					39.6±0.1		
C	40					44		
D	20					27		
E	8.5	9.5			11			
F	4.5					5.5		
G	8					9.5		
H	64	65			73.5			
J	25					32		
K	39	40			41.5			
L1	9	10			11.5			
L2	5.5	6			7			
P	20	22			25			
Q	42					51		
R	29.5					39		
S	29.4					38.9		
T	21					19.5		
O-ring	1BS26					1BS35.5		
AA	M4×0.7					M5×0.8		
AB	26.4±0.05					33.4±0.05		
AC	22					30		

Mounting Details



Rz : Surface roughness (Maximum peak-to-valley height)

Clamp Hole Details

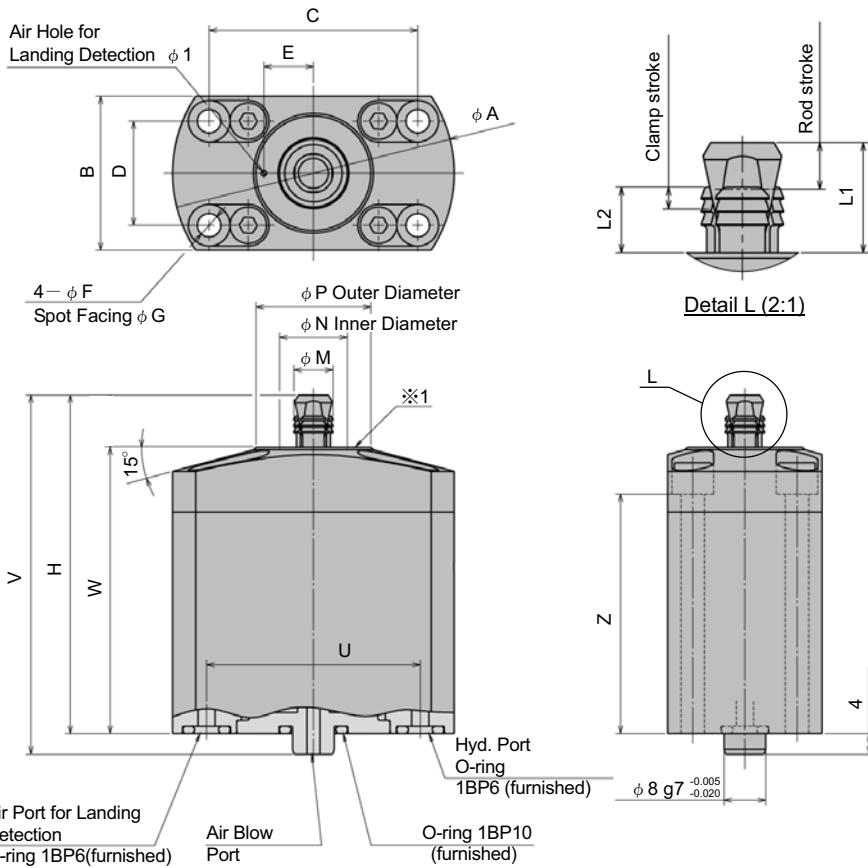


Mounting bolts are not furnished.

Be sure to use furnished O-ring.

※1 : Hardness of landing surface is HRC55.

CGH 0 ① - ② G Gasket Type



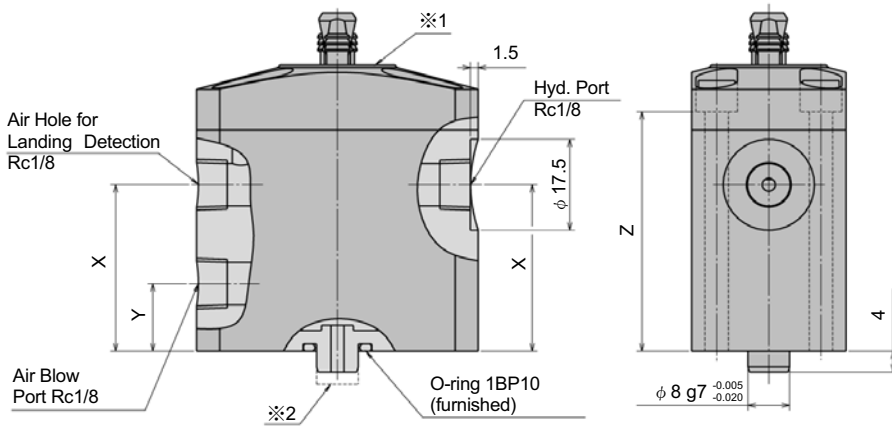
Dimensions

MODEL	CGH01-				
	06	07	08	09	10
M	5.5	6.5	7.5	8.5	9.5
N	11	12	13	14	15

MODEL	CGH02-		
	11	12	13
M	10.5	11.5	12.5
N	16	17	18

MODEL	CGH01-					CGH02-		
	06	07	08	09	10	11	12	13
A	54					63		
B	29.6±0.1					39.6±0.1		
C	40					44		
D	20					27		
E	8.5	9.5				11		
F	4.5					5.5		
G	8					9.5		
H	64	65				73.5		
L1	9	10				11.5		
L2	5.5	6				7		
P	20	22				25		
U	41					49		
V	68	69				77.5		
W	55±0.01					62±0.01		
X	31					35		
Y	13					15		
Z	46					51.5		
AA	M4×0.7					M5×0.8		

CGH 0 ① - ② S Piping Type (made to order)



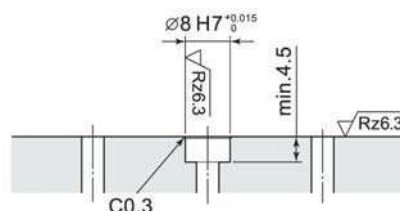
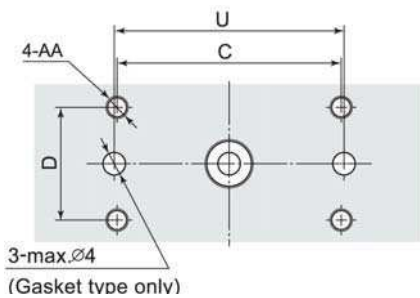
Mounting bolts are not furnished.

Be sure to use furnished O-ring.

※1 : Hardness of landing surface is HRC55.

※2 : For Piping Type, plug this hole.

Mounting Details



Rz : Surface roughness (Maximum peak-to-valley height)

Specifications

Model	CGH01					CGH02						
	06	07	08	09	10	11	12	13				
Working Pressure Range	4 ~ 7 MPa				4 ~ 10 MPa							
Proof Pressure	10.5 MPa				15 MPa							
Cylinder force (at 7MPa) # 1	0.94 kN				1.87 kN							
Clamping force (at 7MPa) # 1	0.85 kN				1.69 kN							
Radial expansion force (at 7 MPa) # 1	4.39 kN				7.59 kN							
Rod Stroke					4.2 mm							
Clamp Stroke # 2					1.2 ~ 2 mm							
Return Spring Force	0.27 ~ 0.30 (#1) ~ 0.39 kN				0.54 ~ 0.60 (#1) ~ 0.77 kN							
Cylinder Capacity	1.16 cm ³				2.06 cm ³							
Allowable Eccentricity					± 0.4 mm							
Recommended Air blow pressure					0.2 ~ 0.4 MPa							
Ambient Temperature					0 ~ 70 °C							
Mass	Flange type				0.51 kg				0.89 kg			
	Gasket / Piping type				0.55 kg				0.95 kg			

#1 At standard hole diameter.

#2 Refer to "Relation of clamp hole diameter and Rod height and clamp stroke".

Class Definition

CGH 0 ① - ② ③

① Size

1, 2

② Clamp hole diameter

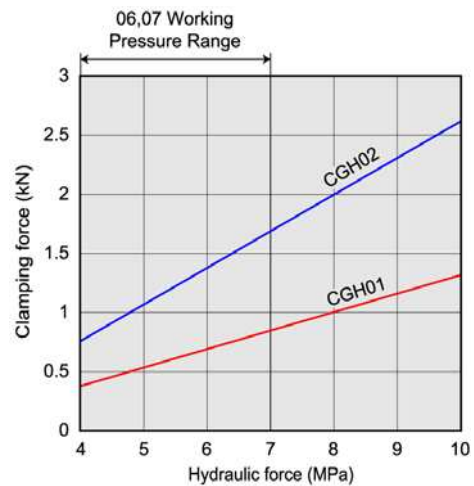
06, 07, 08, 09, 10, 11, 12, 13

③ Mounting type

F : Flange type
G : Gasket type
S : Piping type (Rc) #

: made to order

Performance Diagram

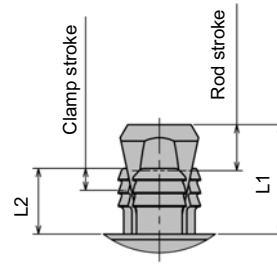
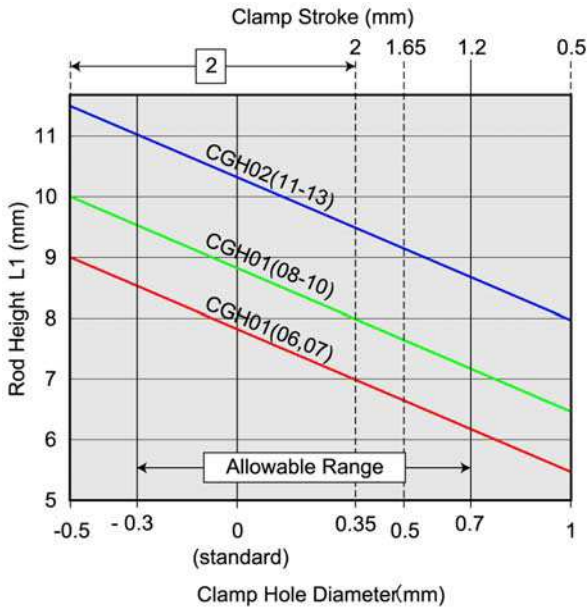


The chart above shows the value with the clamp hole of standard diameter.

Workpiece and clamping hole

Model		CGH01					CGH02		
		06	07	08	09	10	11	12	13
Workpiece material (hardness)		Aluminum, Steel, and others (HRC25 and below) Cast iron is not suitable for use							
Clamp hole	Standard diameter (mm)	6	7	8	9	10	11	12	13
	Allowable Min. Diameter	5.7	6.7	7.7	8.7	9.7	10.7	11.7	12.7
	Allowable Max. Diameter	6.7	7.7	8.7	9.7	10.7	11.7	12.7	13.7
	Limit cone angle	3° or below							
	Circularity	0.1 or below							

Relation of clamp hole diameter, rod height and clamp stroke



About clamp stroke

When clamp hole diameter is not more than "standard diameter +0.35mm", clamp stroke is 2mm. If its diameter is more than that, stroke becomes shorter. At the maximum allowable diameter "standard diameter +0.7mm", clamp stroke is 1.2mm.

Caution

- (1) Do not disassemble CGH, as the powerful spring installed inside the body may jump out, and a particular fixture is required to reassemble. Contact us, for any repair requiring disassembling of the body. By way of exemption, for replacing the grippers, the cap at the cylinder top can be removed safely. Refer to the instruction manual for replacing the gripper.
- (2) To model CGH, do not apply larger oil pressure than the maximum working pressure specified in the specification table.
- (3) Set a work-piece to make the center line of the clamp hole be 90 degrees against the landing surface of CGH. If not 90 degrees, gripper will not evenly contact the clamping surface. This may cause load concentration to damage CGH.
- (4) Be sure to carry out air-blow throughout to blow off chips.
- (5) Before placing a workpiece, make sure that there is no chip nor dust remaining in the clamp hole and the landing surface of CGH. If chip or dust remain, clamping will become insufficient, and machining accuracy may not be kept.
- (6) If chips come over gripper during machining (i.e. clamp hole is through-bore), keep air-blowing during machining.
- (7) When air-blowing, the workpiece may be floated above the landing surface because of air pressure. Adjust air pressure by adjustment valve or control timing.
- (8) According to the material or heat treatment condition of the work-piece, grip depth or scratch mark varies. The condition of workpiece and clamp hole should be kept as per specification table. If not, sufficient clamp force will not be attained.
- (9) For tapered clamp hole (e.g. taper hole for casting), carry out a test clamp with the actual work-piece to confirm clamping condition.
- (10) If thickness of workpiece near clamp hole is too thin, work-piece may be deformed. Carry out a test clamp with the actual workpiece to confirm the condition.
- (11) It is recommended that a gripper, a scraper and R spring are changed every 200,000 times. Order the replacement by Gripper set model code specified in the right table.

Clamp model	Gripper set model	Contents of a gripper set	
CGH01-06	CGH01-J06	Gripper ㊤ 4 piece Scraper ㊥ 1 piece Spring ㊦ 1 piece	
CGH01-07	CGH01-J07		
CGH01-08	CGH01-J08		
CGH01-09	CGH01-J09		
CGH01-10	CGH01-J10		
CGH02-11	CGH02-J11		
CGH02-12	CGH02-J12		
CGH02-13	CGH02-J13		

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CERTIFICATE OF APPROVAL ISO9001

Specifications are subject to change without prior notice.