

1

APS



FEATURES

100-140-160-190-250 APS
Accessories

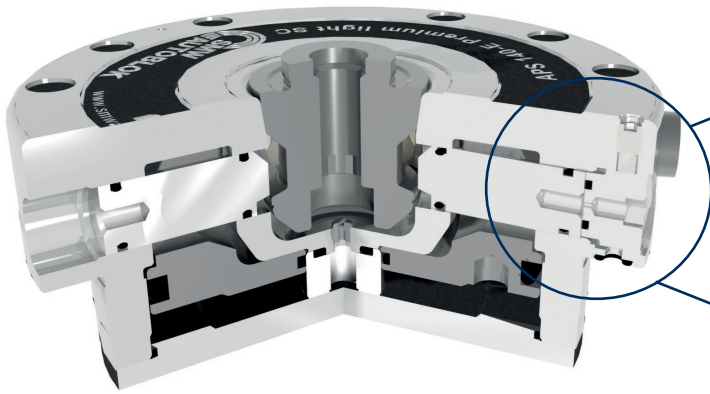


1 CLAMPING SYSTEM WITH 3 JAWS AT 120°

APS is the only one ZERO POINT clamping system with 3 jaws at 120° and thanks to special treatments of the clamping jaws further improves its durability.

2 STROKE CONTROL SYSTEM

The **SC system** is ideal for automated applications with robot loading and unloading of the pallets. The APS locking and unlocking is monitored by air pressure.



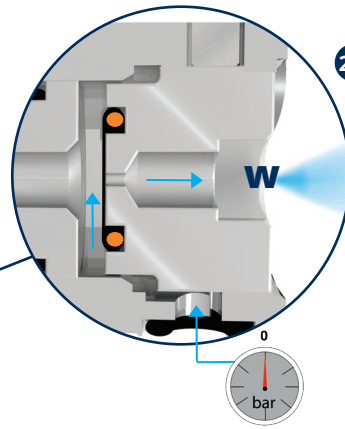
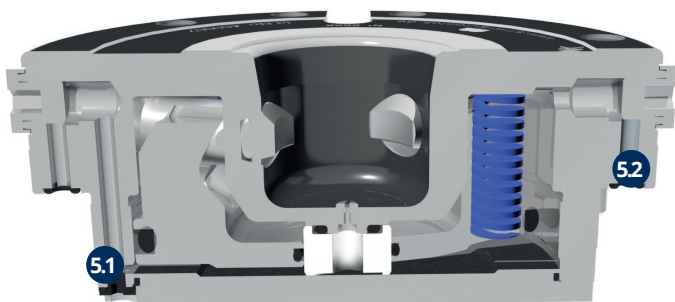
3 MAXIMUM RIGIDITY

Jaws with double inclined plane which generates the "PULL DOWN" effect and piston with integral inclined planes.

4 MAXIMUM ACCURACY

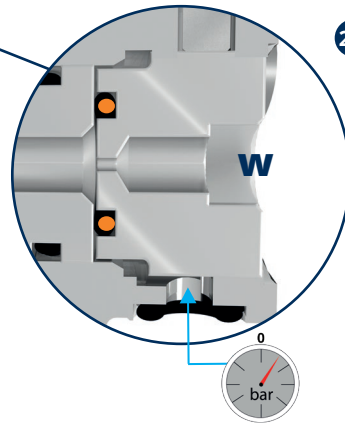
Maximum accuracy of the tapered coupling between the pin and the module.

5 TURBO FUNCTION



2.1 LOCKING POSITION

The air enters from the lower side inlet the hole and exits out from the hole **W** = pressure drop in the line and the machine receives a "APS locked" confirmation.



2.2 UNLOCKING POSITION

The air enters from the lower side inlet and it can't escape from the hole **W** = no pressure drop in the line and the machine receives a "APS unlocked" confirmation.

5.1 UNLOCKING FUNCTION at 6 bar

5.2 TURBO FUNCTION

The **TURBO** function is always integrated in **APS** modules. **TURBO** is the function by means of which the compressed air increases the clamping force applied by the springs until reaching the "PULL DOWN" clamping force

ATTENTION: the pneumatic system of the pressure switch must signal the alarm condition and must prevent the pallet exchange on the APS or any robot operation when the inlet pressure is less than 6 bar.

APS 100 E BASIC - ID.N. 460007 for external mounting

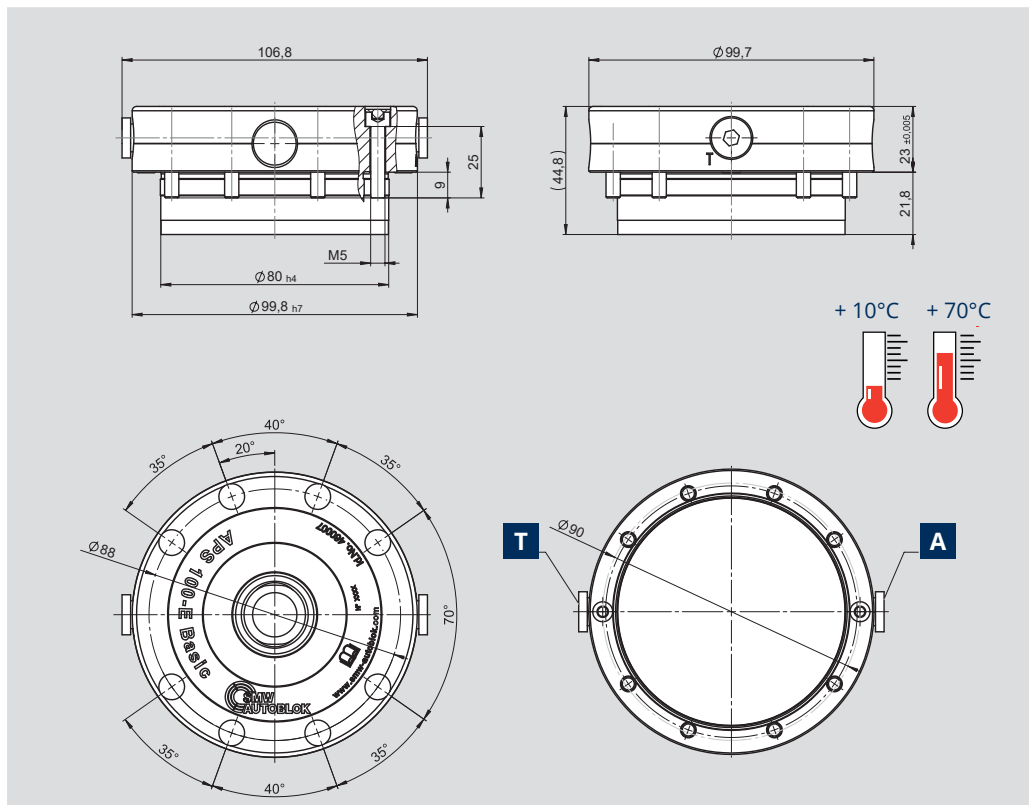


Zero Point Clamping Module

Technical features

- 2 Clamping slides
- TURBO function **T** to increase the clamping force

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
460007	4 / 15**kN	13(M6)*** 25(M8) kN	6 bar	< 0,005 mm	1,9 Kg

APS 100 E PREMIUM - ID.N. 460005 for external mounting

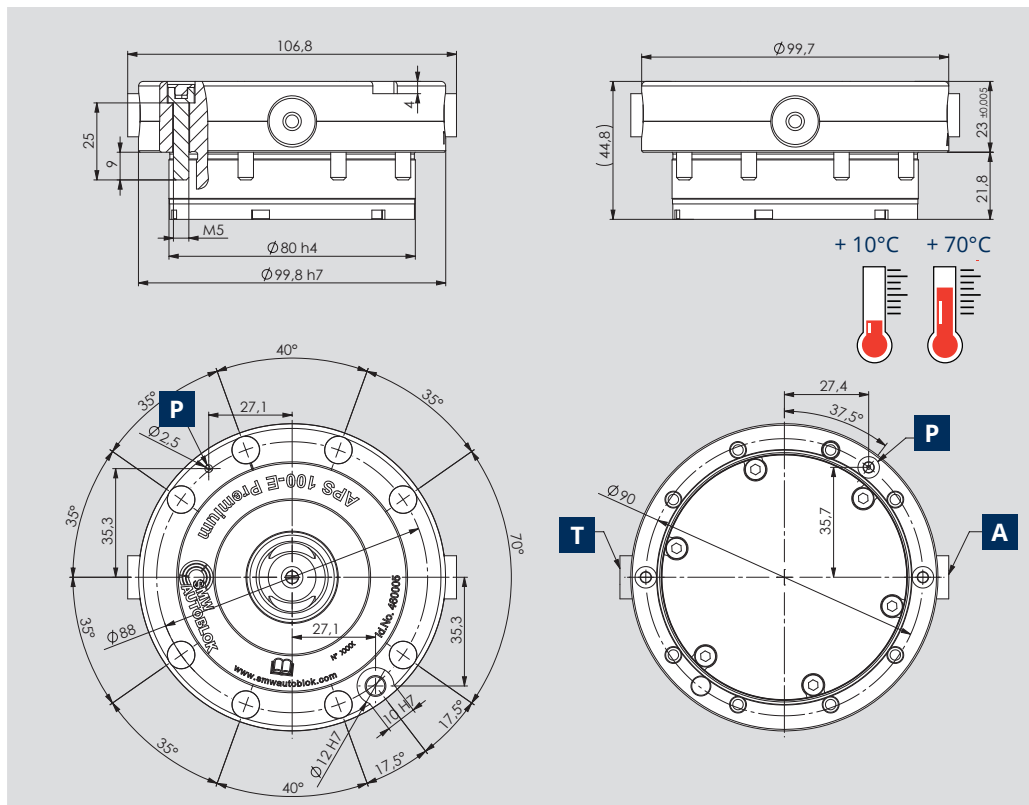


Zero Point Clamping Module

Technical features

- 2 Clamping slides
- TURBO function **T** to increase the clamping force
- Anti-rotation key seat
- Air sensing **P**
- Air cleaning

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
460005	4 / 15**kN	13(M6)*** 25(M8) kN	6 bar	< 0,005 mm	1,9 Kg

(*) with screws DIN EN ISO 4762 - 12.9 / (**) with "turbo effect"/ (***) screws EN-ISO10642

APS 140 E BASIC - ID.N. 460001 for external mounting

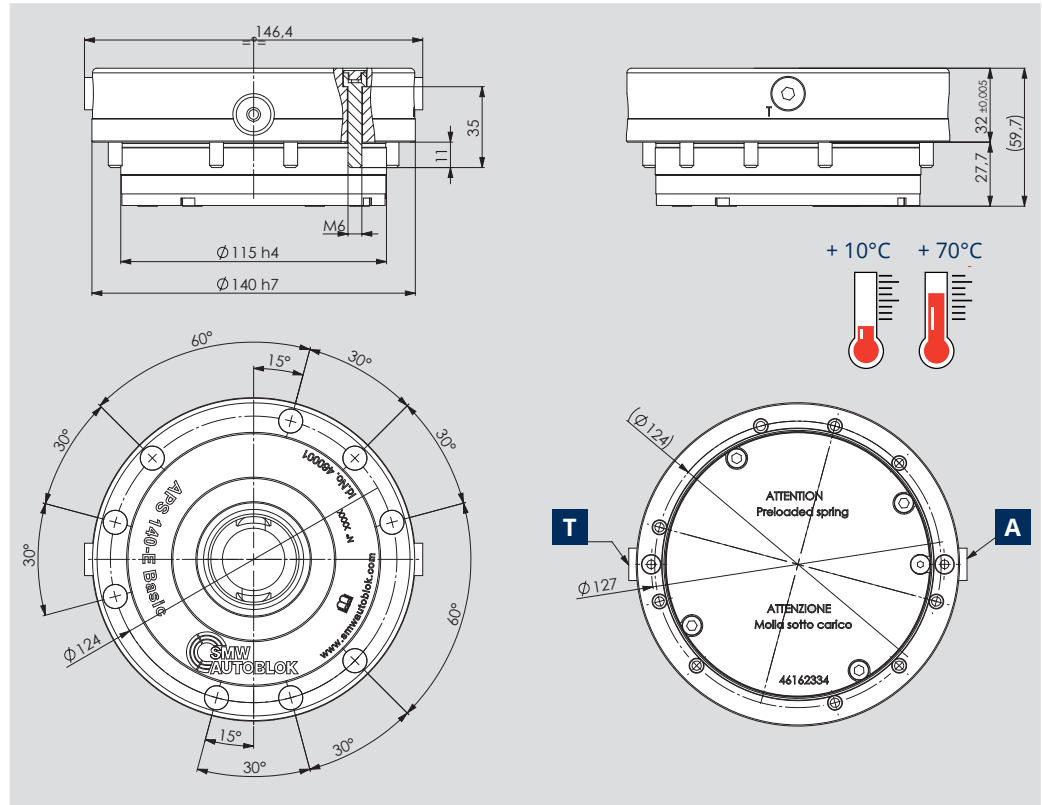


Zero Point Clamping Module

Technical features

- 2 Clamping slides
- TURBO function **T** to increase the clamping force

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
460001	7,5 / 26** kN	35(M10) 50(M12) 75(M16) kN	6 bar	< 0,005 mm	4,5 Kg

APS 140 E PREMIUM LIGHT - ID.N. 460003 for external mounting

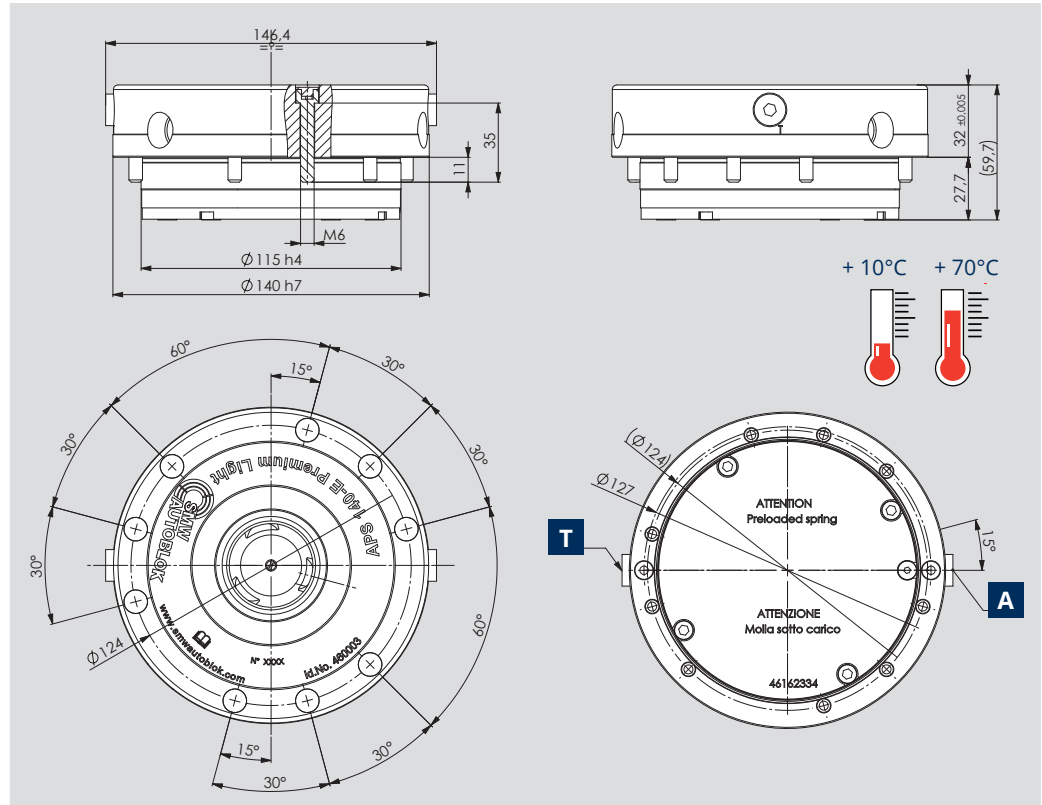


Zero Point Clamping Module

Technical features

- 3 Clamping slides
- TURBO function **T** to increase the clamping force
- Air cleaning

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
460003	7,5 / 26**kN	35(M10) 50(M12) 75(M16) kN	6 bar	< 0,005 mm	4,5 Kg

(*) with screws DIN EN ISO 4762 - 12.9 / (***) with "turbo effect"

APS 140 E PREMIUM LIGHT SC - ID.N. 46162540

with pneumatic stroke control

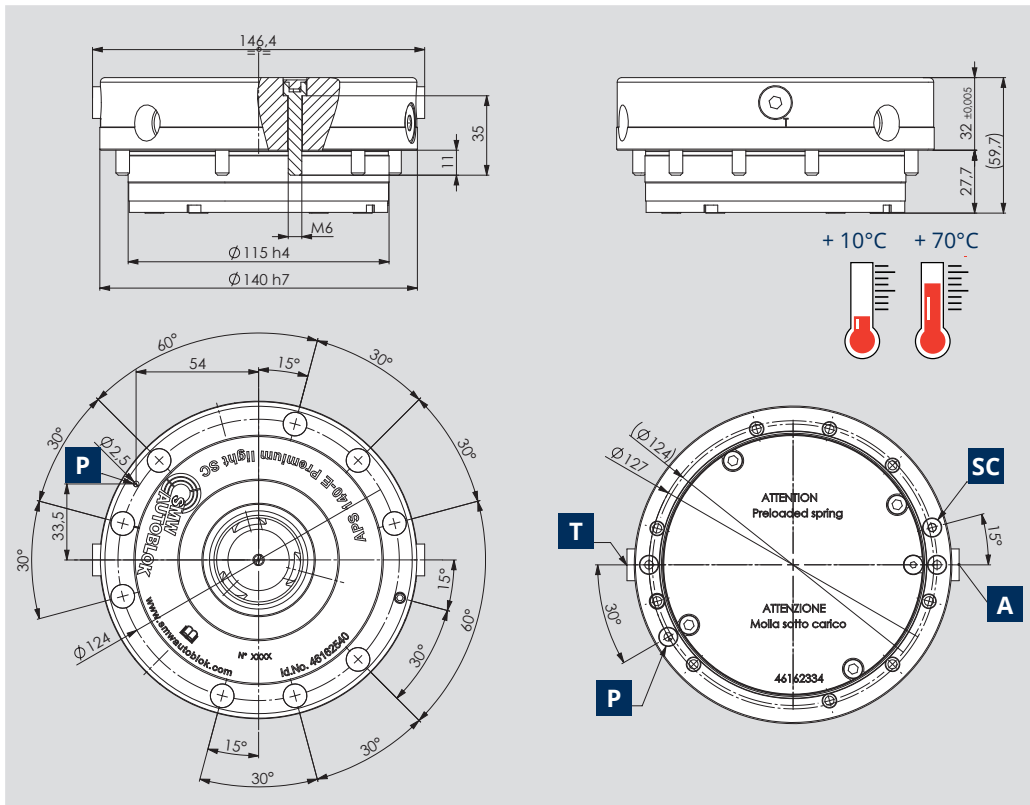


Zero Point Clamping Module

Technical features

- 3 Clamping slides
- TURBO function **T** to increase the clamping force
- Pneumatic stroke control **SC**
- Air sensing **P**
- Air cleaning

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
46162540	7,5 / 26** kN	35(M10) 50(M12) 75(M16) kN	6 bar	< 0,005 mm	4,5 Kg

APS 140 E PREMIUM SC - ID.N. 460002

for external mounting

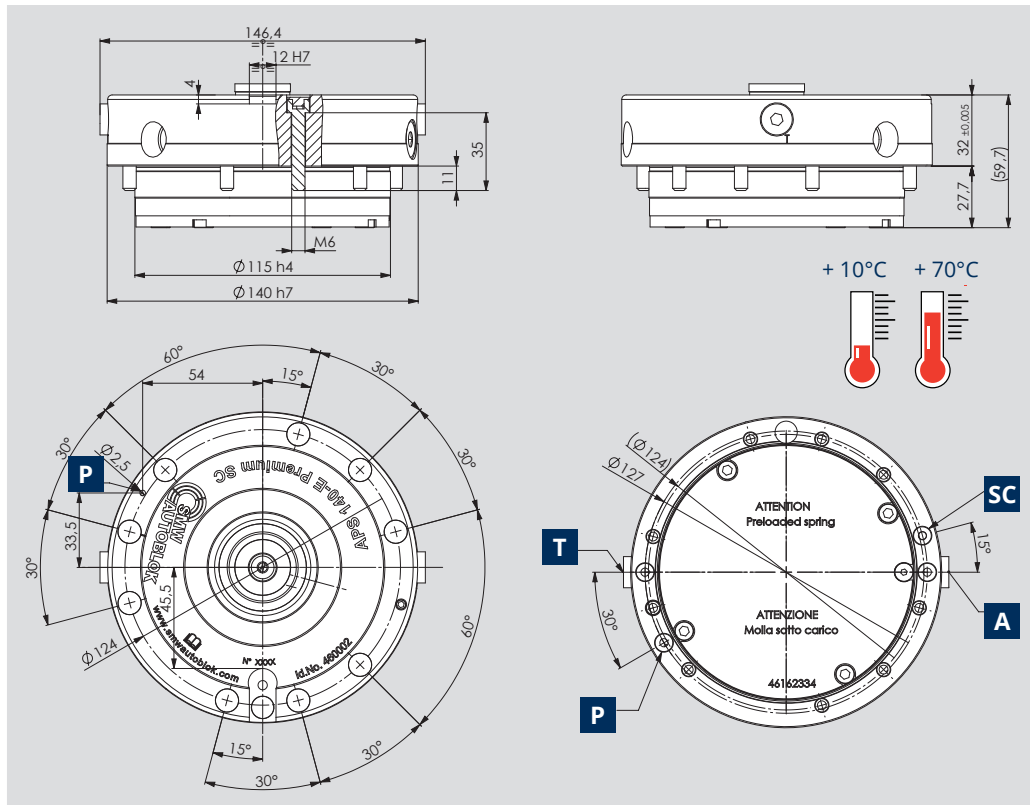


Zero Point Clamping Module

Technical features

- 3 Clamping slides
- TURBO function **T** to increase the clamping force
- Pneumatic stroke control **SC**
- Air sensing **P**
- Air cleaning
- Anti-rotation key seat

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
460002	7,5 / 26** kN	35(M10) 50(M12) 75(M16) kN	6 bar	< 0,005 mm	4,5 Kg

(*) with screws DIN EN ISO 4762 - 12.9 / (**) with "turbo effect"

APS 140 E PREMIUM LIGHT INOX - ID.N. 46162830 for external mounting

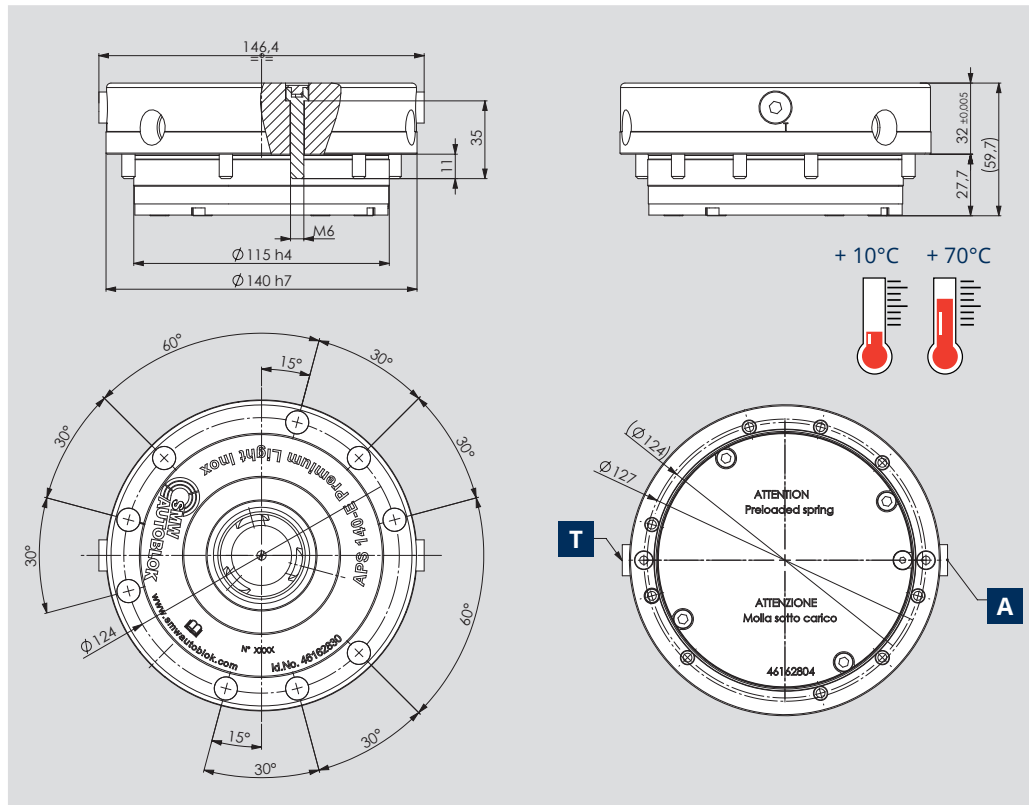


Zero Point Clamping Module

Technical features

- Inox body
- 3 Clamping slides
- TURBO function **T** to increase the clamping force
- Ideal for EDM Machines

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
46162830	7,5 / 26** kN	35(M10) 50(M12) 75(M16) kN	6 bar	< 0,005 mm	4,5 kg

APS 140 E PREMIUM LIGHT INOX-HEAT - ID.N. 46162860 for external mounting

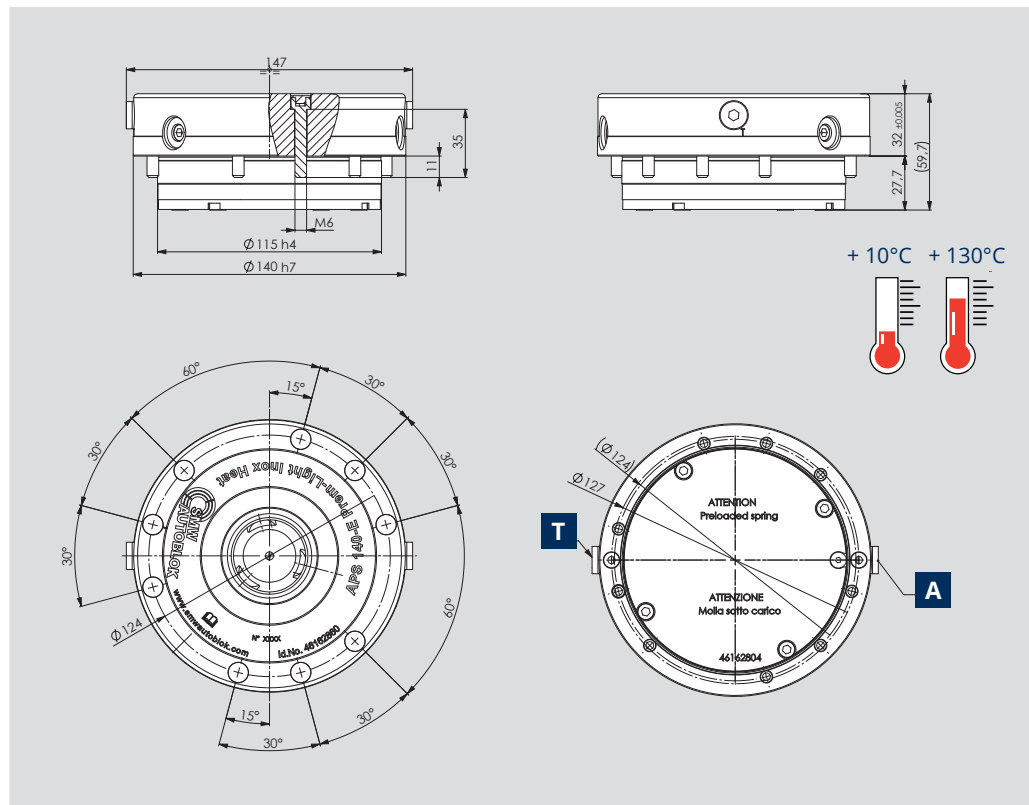


Zero Point Clamping Module

Technical features

- Inox body
- 3 Clamping slides
- TURBO function **T** to increase the clamping force
- Ideal for HT

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
46162860	7,5 / 26** kN	35(M10) 50(M12) 75(M16) kN	6 bar	< 0,005 mm	4,5 kg

(*) with screws DIN EN ISO 4762 - 12.9 / (**) with "turbo effect"

APS 140 I PREMIUM LIGHT - ID.N. 46162480 for built-in mounting

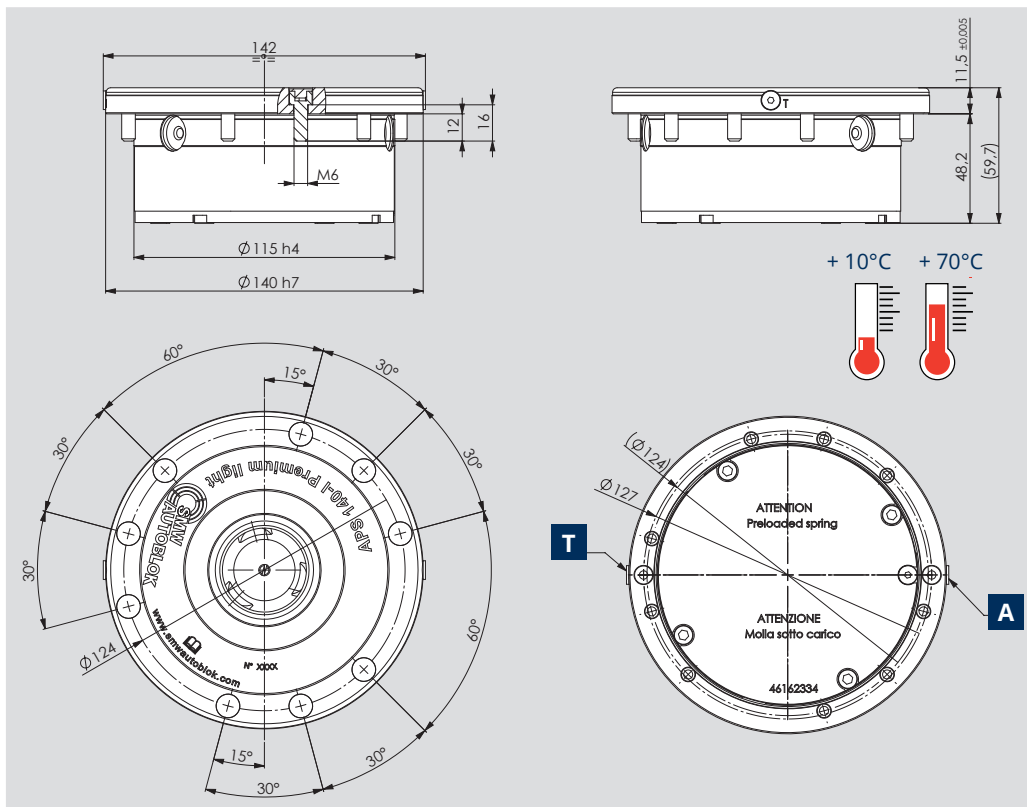


Zero Point Clamping Module

Technical features

- 3 Clamping slides
- TURBO function **T** to increase the clamping force
- Air cleaning

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
46162480	7,5 / 26**kN	35(M10) 50(M12) 75(M16) kN	6 bar	<0,005mm	4,5 kg

APS 140 E Ve SC - ID.N. 46165500 NSE plus 138 interchangeable

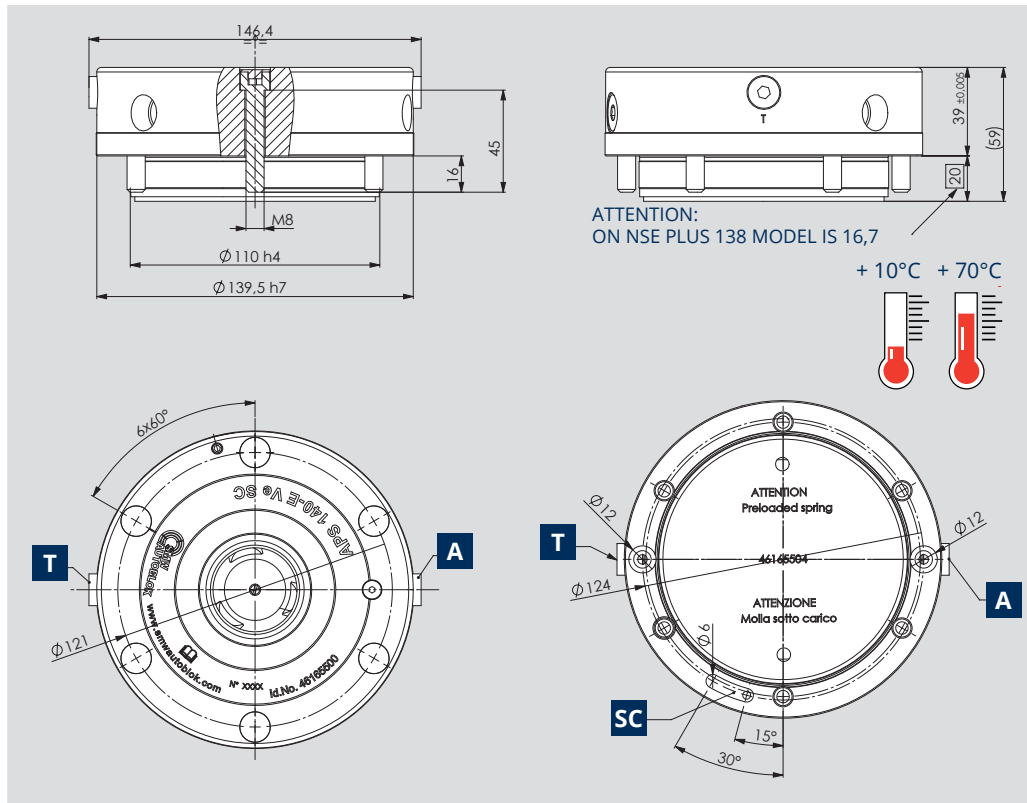


Zero Point Clamping Module

Technical features

- 3 Clamping slides
- TURBO function **T** to increase the clamping force
- Pneumatic stroke control **SC**
- Air cleaning

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
46165500	7,5 / 26** kN	35(M10) 50(M12) 75(M16) kN	6 bar	< 0,005 mm	4,8 Kg

(*) with screws DIN EN ISO 4762 - 12.9 / (***) with "turbo effect"

APS 160 E PREMIUM LIGHT SC - ID.N. 46165700

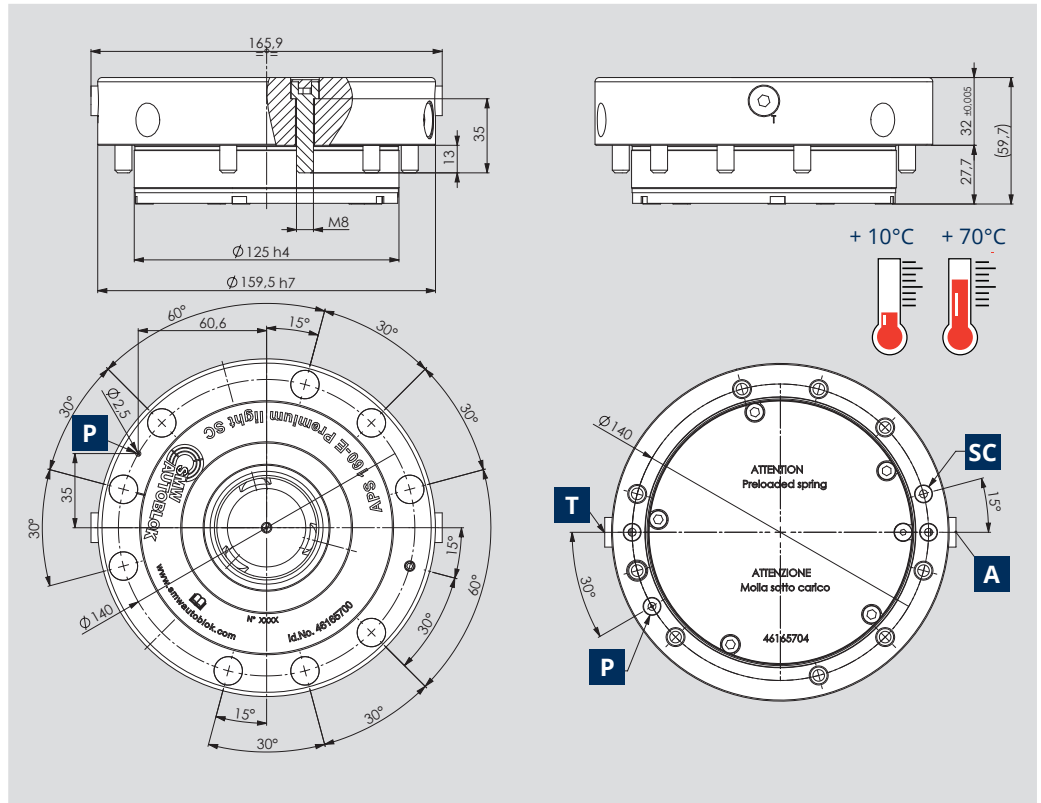
for external mounting



Zero Point Clamping Module

Technical features

- 3 Clamping slides
- TURBO function **T** to increase the clamping force
- Air sensing **P**
- Air cleaning
- Pneumatic stroke control **SC**



A = Open

ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
46165700	9 / 30**kN	50(M12) 75(M16) kN	6 bar	<0,005mm	5,9 Kg

APS 190 E PREMIUM SC - ID.N. 46165640

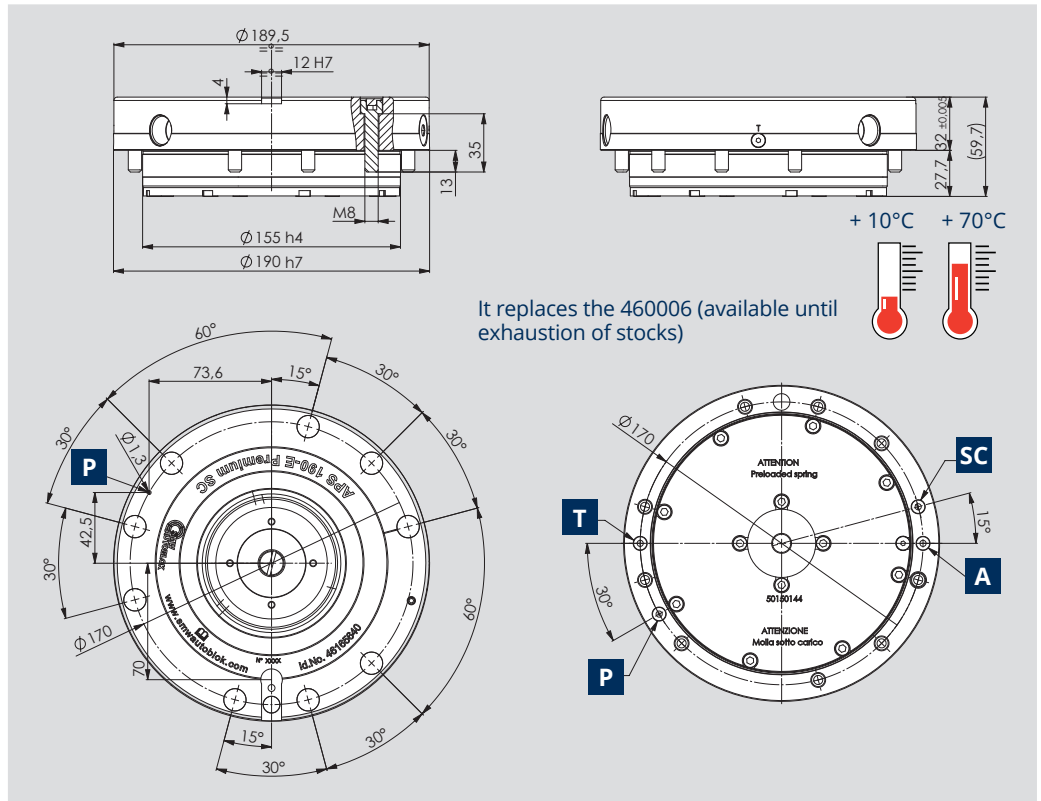
with pneumatic stroke control



Zero Point Clamping Module

Technical features

- 3 Clamping slides
- TURBO function **T** to increase the clamping force
- Anti-rotation key seat
- Air sensing **P**
- Pneumatic stroke control **SC**



A = Open

ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
46165640	13,5 / 45** kN	50(M12) 75(M16) 80(6xM6) 150(6xM8) kN	6 bar	< 0,005 mm	6,9 Kg

(*) with screws DIN EN ISO 4762 - 12.9 / (**) with "turbo effect"

APS 190 E PREMIUM SC-6S - ID.N. 46162650

prepared for maximum 6 couplers

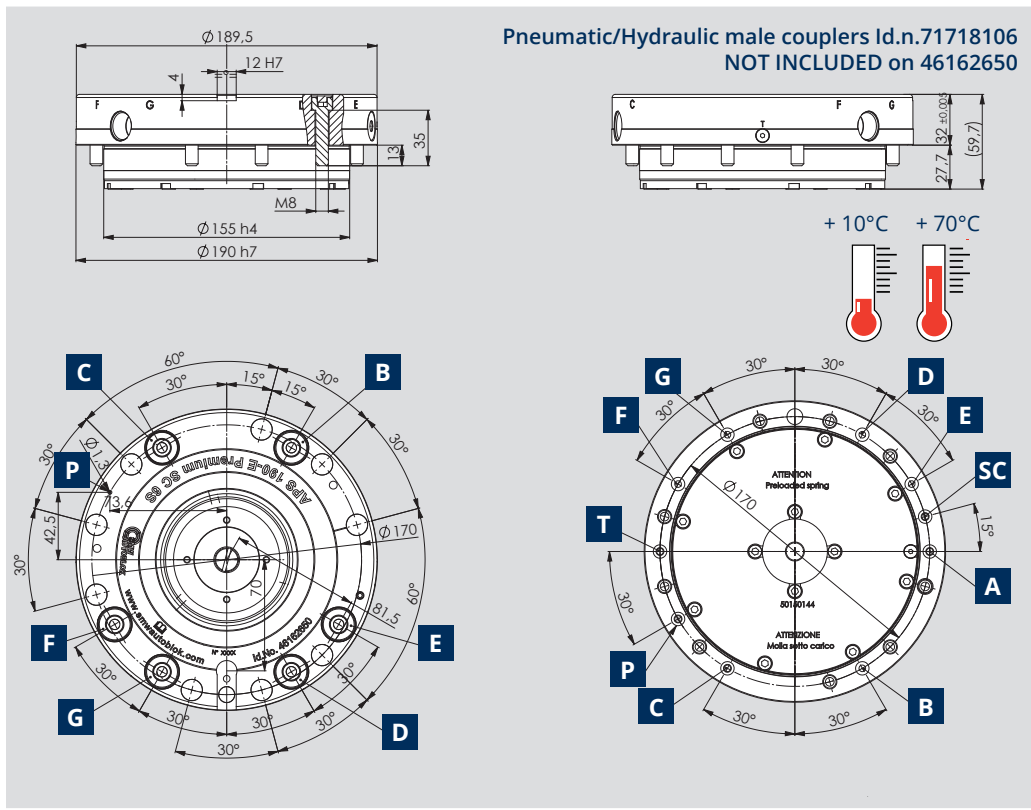


Zero Point Clamping Module

Technical features

- 3 Clamping slides
- TURBO function **T** to increase the clamping force
- Anti-rotation key seat
- Air sensing **P**
- Pneumatic stroke control **SC**
- n.6 seats **B C D E F G** prepared to mount pneumatics/hydraulics couplers

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
46162650	13,5 / 45** kN	50(M12) 75(M16) 80(6xM6) 150(6xM8) kN	6 bar	< 0,005 mm	6,9 Kg

APS 250 E PREMIUM SC - ID.N. 46165030

with pneumatic stroke control

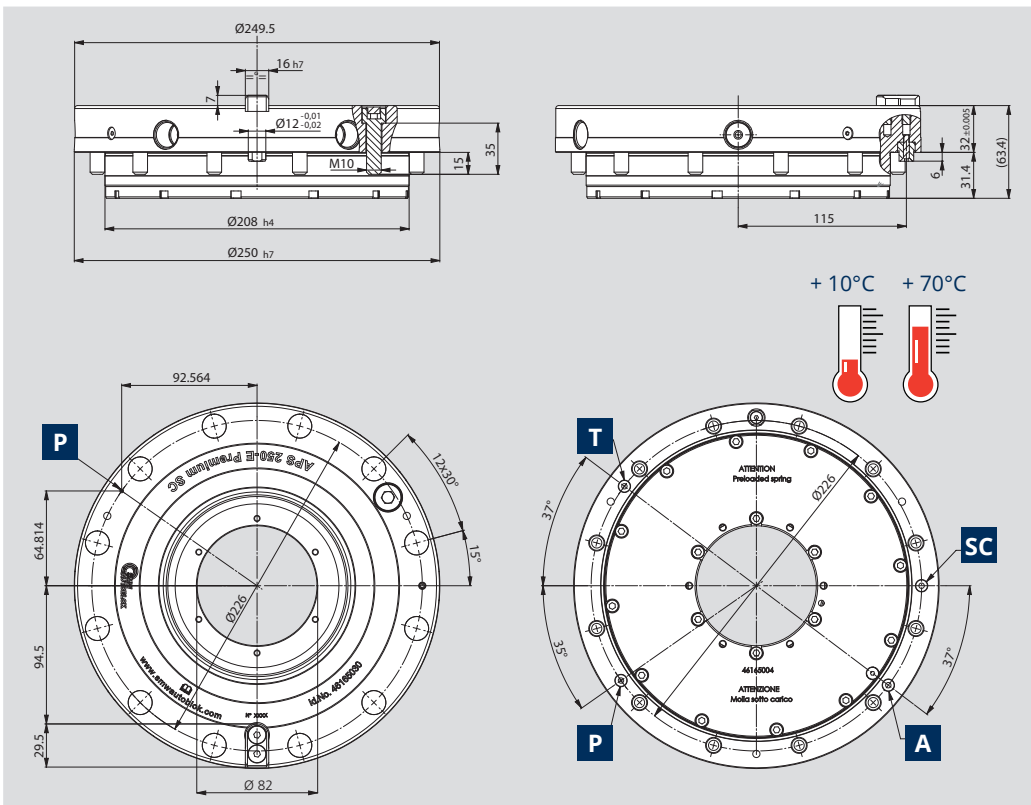


Zero Point Clamping Module

Technical features

- 6 Clamping slides
- TURBO function **T** to increase the clamping force
- Anti-rotation key seat
- Air sensing **P**
- Pneumatic stroke control **SC**

A = Open



ID.No.	Pull down force	Holding force (*)	Unlocking pressure	Repeatability	Weight
46165030	18 / 55** kN	300(6xM12) 210(6xM10) 375(15xM8) kN	6 bar	< 0,005 mm	15 kg




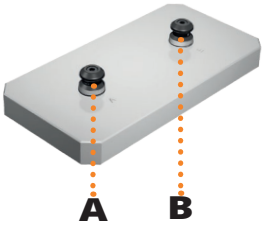
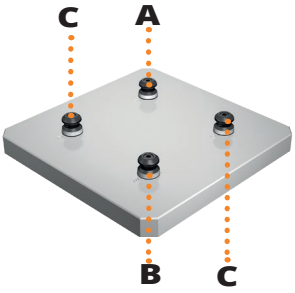
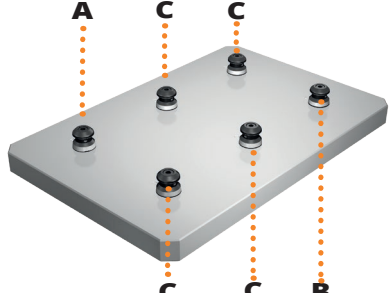
(*) with screws DIN EN ISO 4762 - 12.9 / (***) with "turbo effect"

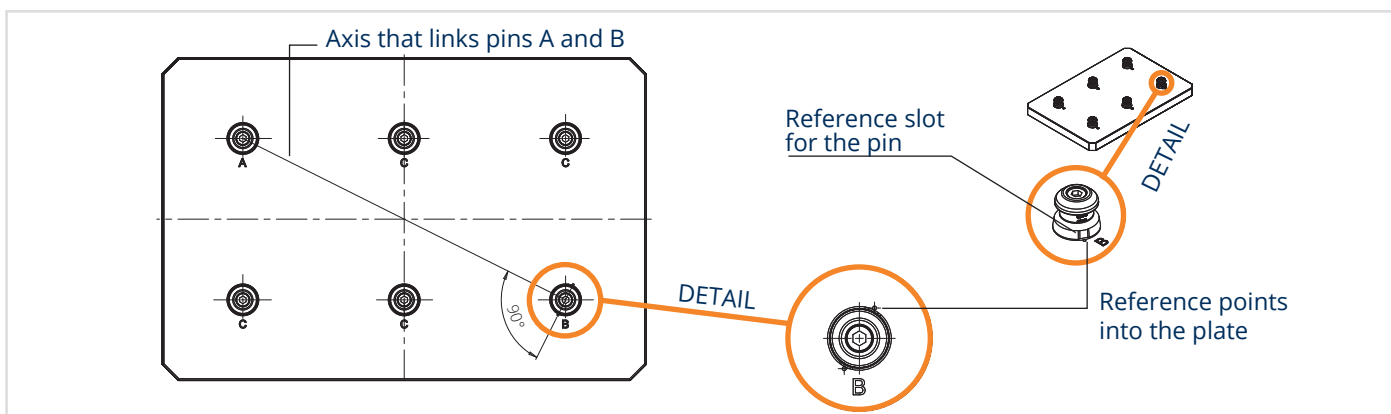
APS summary divided by increasing functional levels

PRODUCT RANGE	APS CLASSIFICATION	SIZE	CLAMPING SLIDES	TURBO	AIR CLEANING	STROKE CONTROL	AIR SENSING	KEY	PREPARED FOR COUPLERS	+10°C + 70°C	+10°C + 130°C
BASIC	BASIC	100	2								
		140	2								
PREMIUM LIGHT	PREMIUM LIGHT	140	3								
	PREMIUM-LIGHT INOX	140	3								
	PREMIUM-LIGHT INOX-HEAT	140	3								
PREMIUM LIGHT SC	PREMIUM LIGHT SC	140	3								
		160	3								
PREMIUM	PREMIUM	100	2								
	PREMIUM SC	140	3								
		190	3								
		250	6								
	PREMIUM SC-6S	190	3								
APS 140 E VeSC		140	3								

CLAMPING PINS

Positioning and clamping of the devices and/or of the workpiece are achieved through the clamping pins.

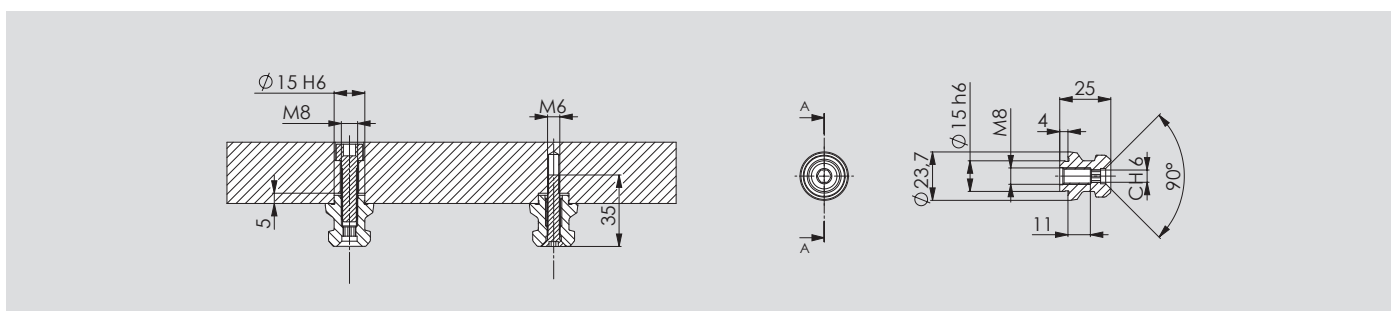
TYPE A Centering pin	TYPE B Reference pin	TYPE C Pull-down pin $\pm 0,05$ mm
 <p>used for centering and clamping</p>	 <p>used for reference and clamping</p>	 <p>only for clamping</p>
		



Tightening torque for pins mounting bolts

BOLTS	N·M
M6	13
M8	35
M10	60
M12	110
M16	200

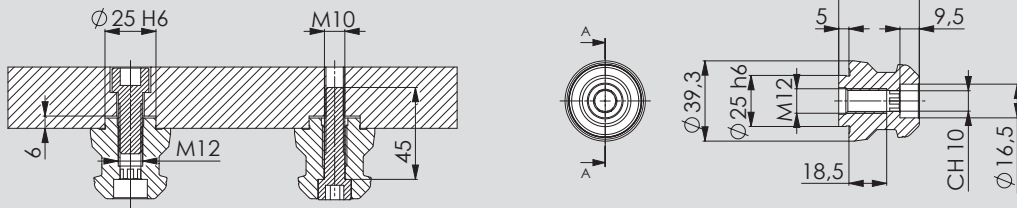
Pins for APS 100



ID.N.	TYPE		WEIGHT
46 16 21 55	A	M8	0,05 Kg
46 16 21 56	B	M8	0,05 Kg
46 16 21 57	C	M8	0,05 Kg

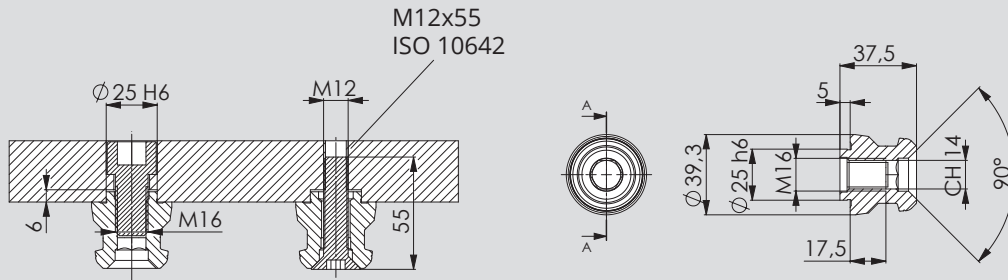
Pins for APS 140 M12 thread

Compatible with
Unilock/Vero-S
system



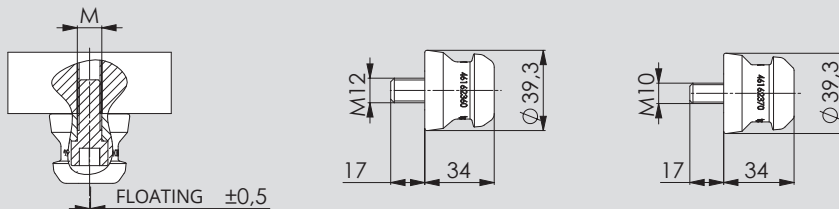
ID.N.	TYPE		WEIGHT
46 16 23 55	A	M12	0,2 Kg
46 16 23 56	B	M12	0,2 Kg
46 16 23 57	C	M12	0,2 Kg

Pins for APS 140 M16 thread



ID.N.	TYPE		WEIGHT
46 16 24 55	A	M16	0,2 Kg
46 16 24 56	B	M16	0,2 Kg
46 16 24 57	C	M16	0,2 Kg

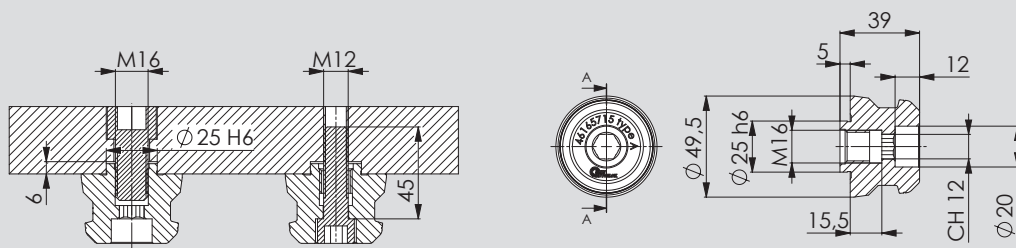
Pins TYPE C floating for APS 140



These pins don't require centering. They are floating only radially and not angularly.

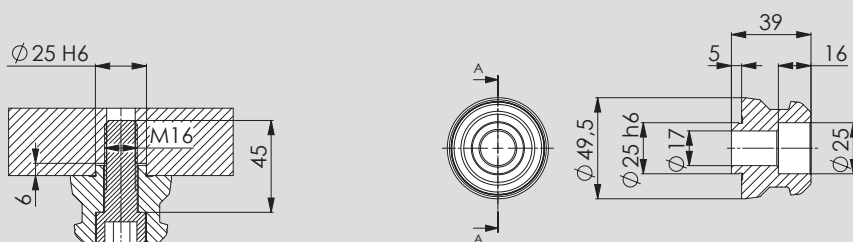
ID.N.	TYPE		WEIGHT
46 16 23 70	C - FLOATING $\pm 0,5$ mm	M10	0,2 Kg
46 16 23 60	C - FLOATING $\pm 0,5$ mm	M12	0,2 Kg

Pins for APS 160 M16 thread



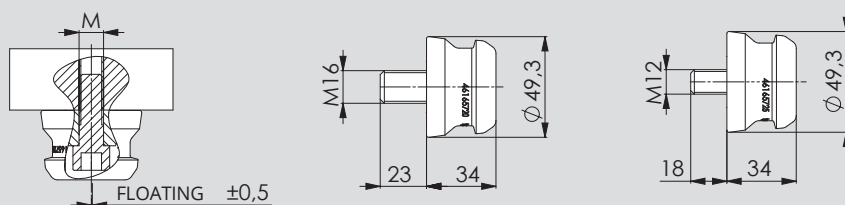
ID.N.	TYPE		WEIGHT
46 16 57 15	A	M16	0,35 Kg
46 16 57 16	B	M16	0,35 Kg
46 16 57 17	C	M16	0,35 Kg

Pins for APS 160 D17



ID.N.	TYPE		WEIGHT
46 16 57 05	A	D17	0,3 Kg
46 16 57 06	B	D17	0,3 Kg
46 16 57 07	C	D17	0,3 Kg

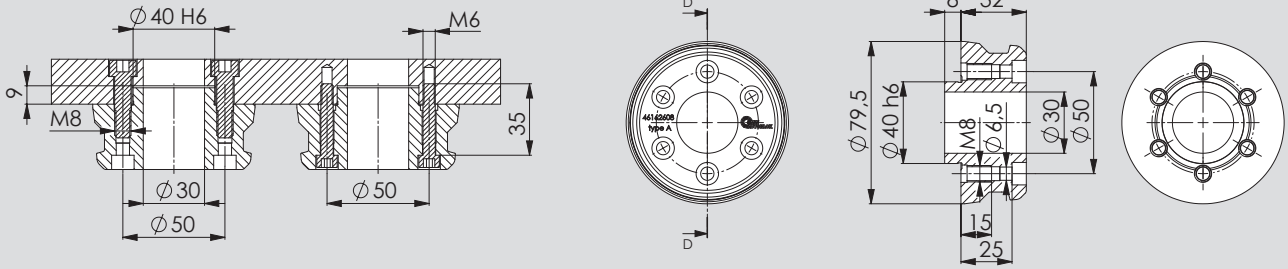
Pins TYPE C floating for APS 160



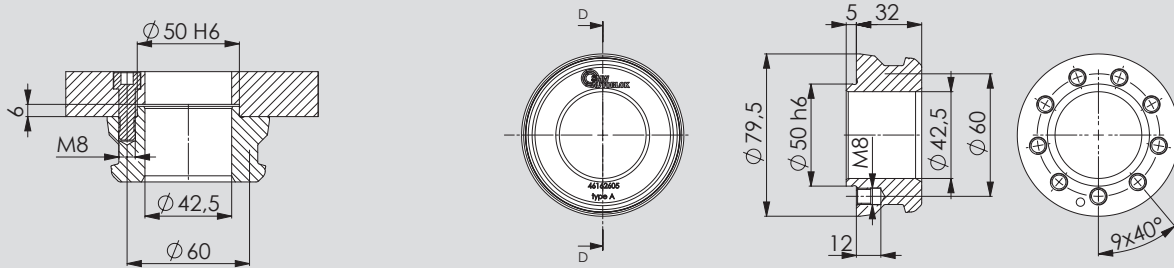
These pins don't require centering. They are floating only radially and not angularly.

ID.N.	TYPE		WEIGHT
46 16 57 20	C - FLOATING $\pm 0,5$ mm	M16	0,4 Kg
46 16 57 25	C - FLOATING $\pm 0,5$ mm	M12	0,35 Kg

Pins for APS 190

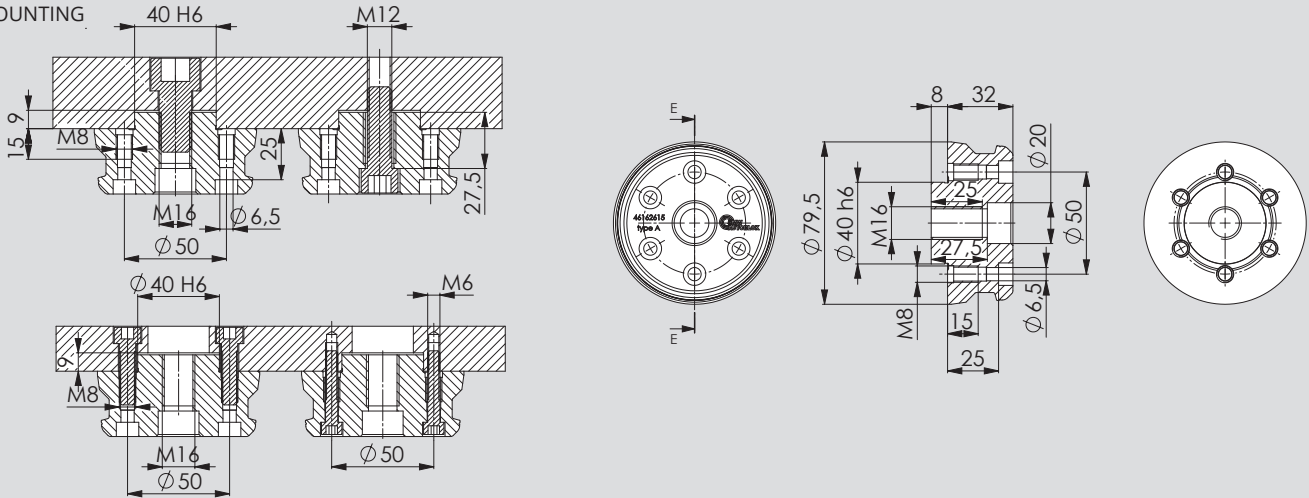


ID.N.	TYPE	WEIGHT	NOTE
46 16 26 08	A	0,85 Kg	Pin with central hole \varnothing 30



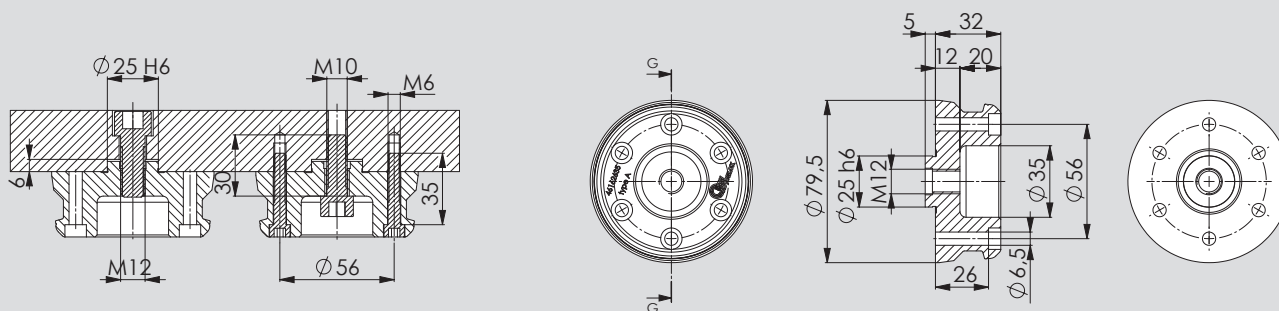
ID.N.	TYPE	WEIGHT	NOTE
46 16 26 05	A	0,7 Kg	Pin with central hole \varnothing 42

RECOMMENDED MOUNTING



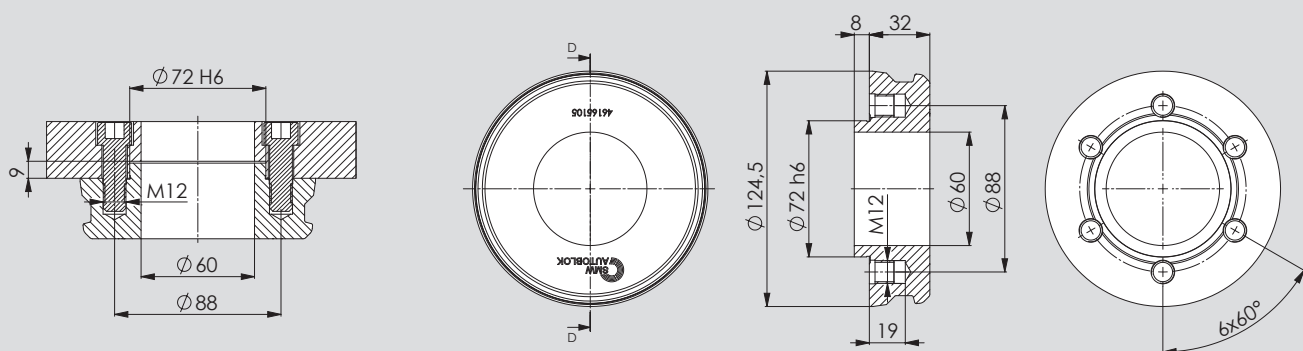
ID.N.	TYPE	WEIGHT
46 16 26 15	A	M16 1 kg
46 16 26 16	B	M16 1 kg
46 16 26 17	C	M16 1 kg

Pins for APS 190

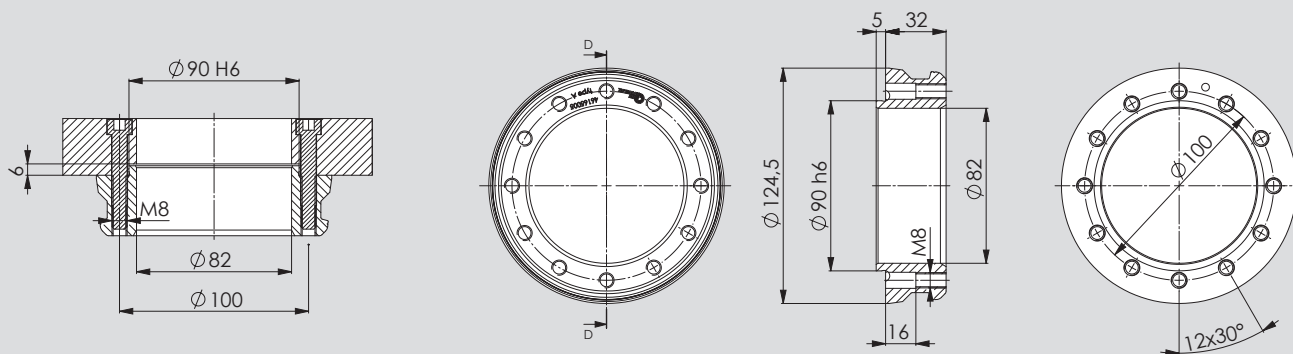


ID.N.	TYPE		WEIGHT
46 16 26 35	A	Mounting pin = to the pin APS-140 M12	0,85 kg

Pins for APS 250

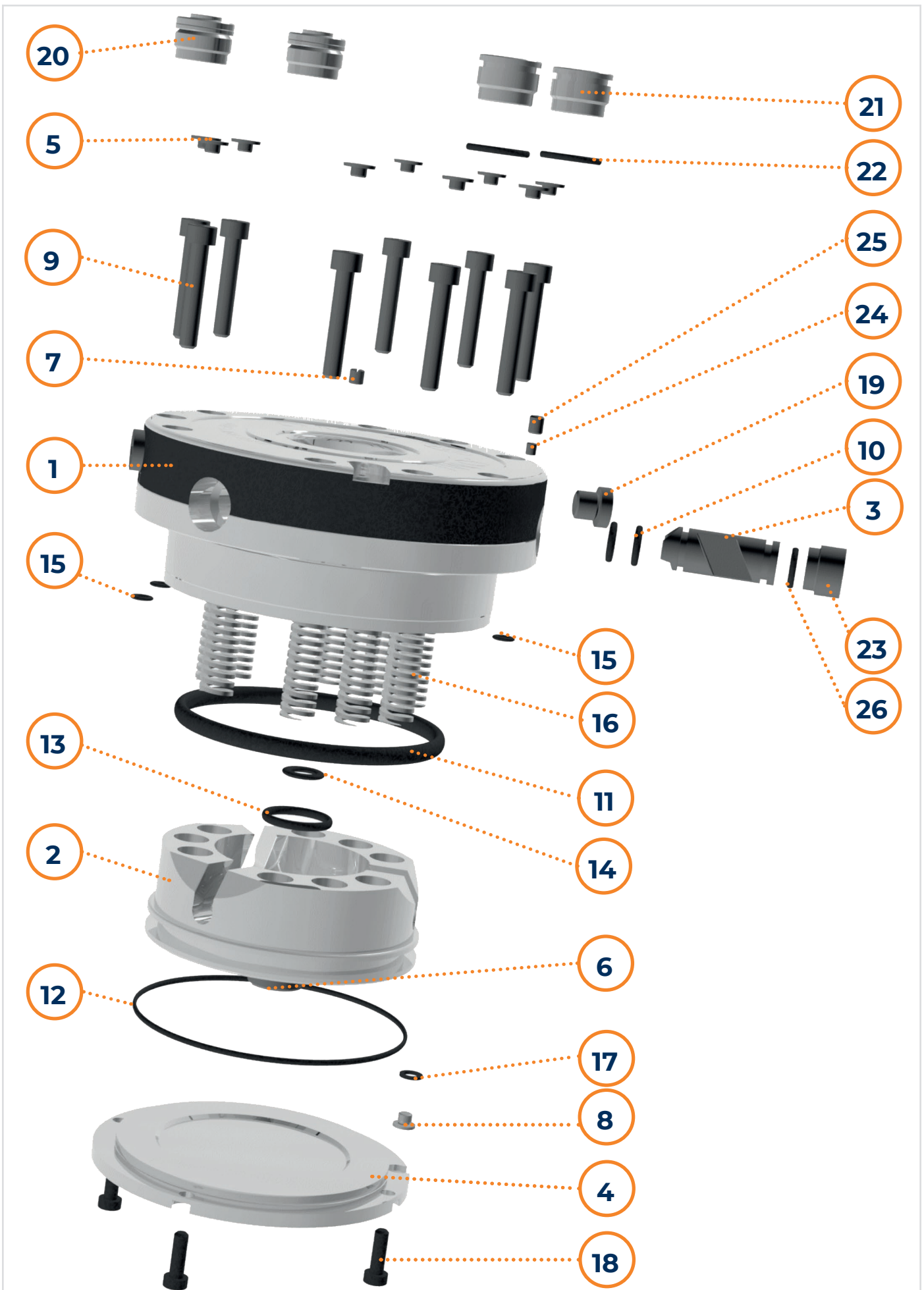


ID.N.	TYPE	WEIGHT	NOTE
46 16 51 05	A	2 Kg	Pin with central hole $\varnothing 60$



ID.N.	TYPE	WEIGHT	NOTE
46 16 50 05	A	1,3 Kg	Pin with central hole $\varnothing 82$

EXPLODED VIEW APS for spare parts



SPARE PARTS LISTS

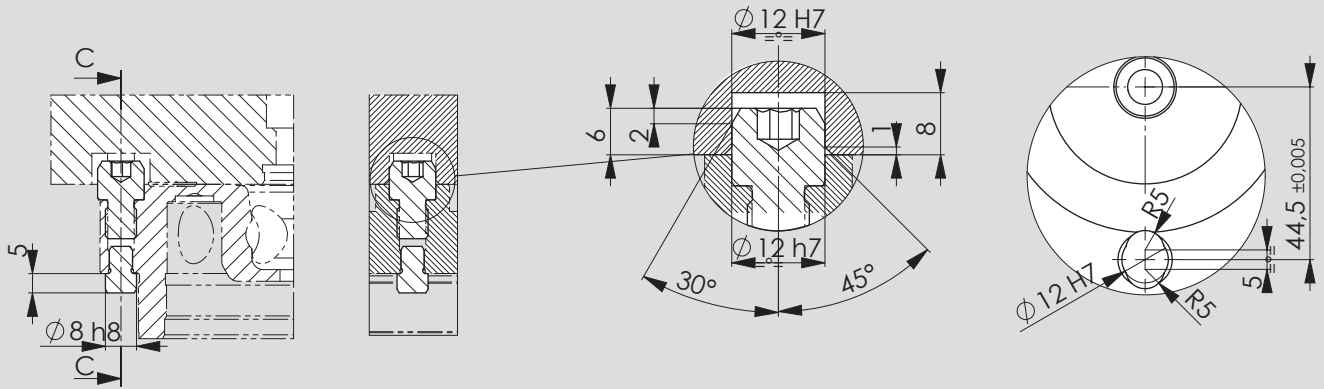
for all APS models

POS.	DESCRIPTION	Q.TY	460007 APS 100 E BASIC	460005 APS 100 E PREMIUM	460001 APS 140 E BASIC	460003 APS 140 E PREMIUM LIGHT	46162540 APS 140 E SC PREMIUM LIGHT	460002 APS 140 E SC PREMIUM	46162830 APS 140 E PREMIUM LIGHT INOX
1	BODY	1	46162181	46162121	46162501	46162391	46162541	46162351	46162831
2	WEDGE	1	46162182	46162122	46162502	46162352	46162352	46162352	46162352
3	DRIVER PIN	3	46162183 (2)	46162183 (2)	46162803 (2)	46162803	46162803	46162803	46162803
4	BACK COVER	1	46162124	46162124	46162334	46162334	46162334	46162334	46162804
5	PLUG	9	46162129 (8)	46162129 (8)	46162309	46162309	46162309	46162309	46162309
6	PIN	1	-	46162130	-	46162340	46162340	46162340	46162340
7	GRUB SCREW	1	-	46162341	-	46162341	46162341	46162341	14191630
8	PLUG	1	71112505	71112505	09111123	09111123	09111123	09111123	09111123
9	SCREW UNI5931 12.9	9	71113027 (8)	71113027 (8)	71113048	71113048	71113048	71113048	71123048
10	OR SEAL	6	71310226 (4)	71310226 (4)	71310226 (4)	71310226	71310226	71310226	71318226
11	OR SEAL	1	71310432	71310432	71310637	71310637	71310637	71310637	71310637
12	OR SEAL	1	71310250	71310250	71310257	71310257	71310257	71310257	71310257
13	OR SEAL	1	-	71310316	-	71310324	71310324	71310324	71310324
14	OR SEAL	1	-	71310311	-	71310312	71310312	71310312	71310312
15	OR SEAL	3	71310217 (2)	71310217	71310219 (2)	71310219 (2)	71310219 (4)	71310219	71310219 (2)
16	SPRING	-	71282703 (8)	71282703 (8)	71282913 (8)	71282913 (6) 71282813 (3)	71282913 (6) 71282813 (3)	71282913 (6) 71282813 (3)	71282913 (6) 71282813 (3)
17	WASHER USIT	1	-	-	71372012	71372012	71372012	71372012	71372012
18	SCREW TCEIBAS 10,9	4	71113710 (6)	71113710 (6)	71119519	71119519	71119519	71119519	71123719
19	PLUG EI+SEAL ISO228	2	71628602	71628602	71628602	71628602	71628602	71628602	71628602
20	COUPLERS	2	-	-	-	-	-	-	-
21	PLUG	2	-	-	-	-	-	-	-
22	OR SEAL	2	-	-	-	-	-	-	-
23	PLUG	1	-	-	-	-	46162543	46162543	46162833 (3)
24	COPPER DISK	1	-	-	-	-	09341010	09341010	-
25	SCREW STEI UNI5923	1	-	-	-	-	71112111	71112111	-
26	OR SEAL	1	-	-	-	-	71310221	71310221	71318313 (3)
SEAL KIT			20590054	20590054	20590042	20590042	20590042	20590042	20590096

POS.	DESCRIPTION	Q.TY	46162860 APS 140 E PREM LIGHT INOX-HEAT	46162480 APS 140 I PREMIUM LIGHT	46165500 APS 140 E Ve SC	46165700 APS 160 E SC PREMIUM LIGHT	46165640 APS 190 E SC PREMIUM	46162650 APS 190 PREMIUM SC-6S	46165030 APS 250 E SC PREMIUM
1	BODY	1	46162831	46162481	46165501	46165701	46165611	46162651	46165001
2	WEDGE	1	46162352	46162352	46162352	46165702	46165612	46165612	46165002
3	DRIVER PIN	3	46162803	46162803	46162803	46162803	46165003	46165003	46165003 (6)
4	BACK COVER	1	46162804	46162334	46165504	46165704	50150144	50150144	46165004
5	PLUG	9	46162309	46162309	46162609 (6)	46162609	46162609	46162609	46165109(12)
6	PIN	1	46162340	46162340	46162340	46162340	-	-	-
7	GRUB SCREW	1	14191630	46162341	46162341	46162341	60360717+ 71372027	60360717+ 71372027	-
8	PLUG	1	09111123	09111123 (3)	09111123	09111123	09111123	09111123	09111123
9	SCREW UNI5931 12.9	9	71123048	71113044	71113068 (6)	71113066	71113066	71113066	71113085(12)
10	OR SEAL	6	71318226	71310226	71310226	71310226	71310227	71310227	71310227(12)
11	OR SEAL	1	71318637	71310637	71310637	71310641	71310653	71310653	71310665
12	OR SEAL	1	71318257	71310257	71310257	71310258	71310264	71310264	71310378
13	OR SEAL	1	71318324	71310324	71310324	71310324	71310439	71310439	71310460
14	OR SEAL	1	71318312	71310312	71310312	71310312	71310350	71310350	71310365
15	OR SEAL	3	71318219	71310219 (2)	71310223 (2)	71310219 (4)	71310219 (4)	71310219 (10)	71310219 (4)
16	SPRING	-	71282913 (6) 71282813 (3)	71282913 (6) 71282813 (3)	71282913 (6) 71282813 (3)	71282913 (6) 71282813 (6)	71282813(15)	71282813(15)	71282723 (6) 71282823(12)
17	WASHER USIT	1	71372213	71372012 (3)	71372012	71372012	71372012	71372012	71372012
18	SCREW TCEIBAS 10,9	4	71123719	71119519	-	71119519 (5)	71113719(8)+ 71113026(4)	71113719(8)+ 71113026(4)	71113024(12)+ 71113027(6)
19	PLUG EI+SEAL ISO228	2	71628302+ 71372123	POS.8+17	71628602	71628602	POS.8+17	POS.8+17	POS.8+17
21	PLUG	6	-	-	-	-	-	46162634	-
22	OR SEAL	6	-	-	-	-	-	71310230	-
23	PLUG	1	46162833 (3)	-	46162543	46204208	46165618	46165618	46165008
24	COPPER DISK	1	-	-	09341010	09341010	09341010	09341010	09341010
25	SCREW STEI UNI5923	1	-	-	71112111	71112111	71112111	71112111	71112111
26	OR SEAL	1	71318313 (3)	-	71310221	71310221	71310221	71310221	71310221
SEAL KIT			20590053	20590042	20590042	20590091	20590095	20590095	20590094

KEYS

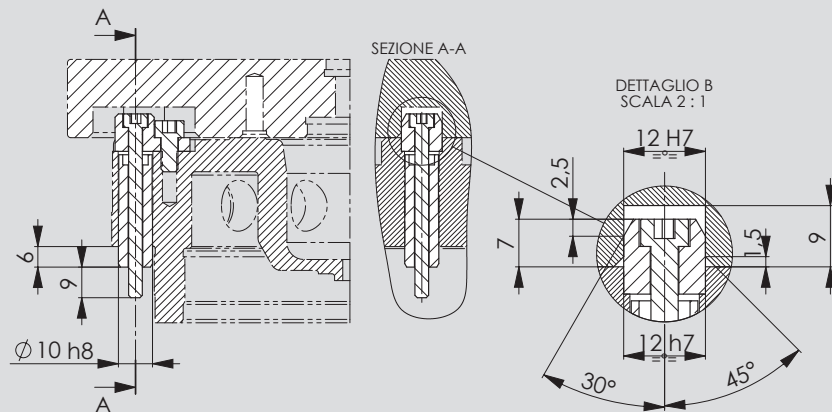
key kit for all APS models



ID.N.

46162133 KEY KIT FOR APS 100

* The SEMIFINISHED KEY in the part that comes out from APS is supplied increased to 12,5mm to be finished to 12h7.



ID.N.

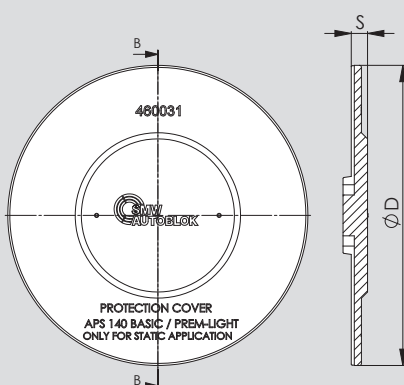
46162333 KEY KIT FOR APS 140E / APS 190E

* 46162335 KEY KIT SMF 12,5 APS 140E / APS 190E

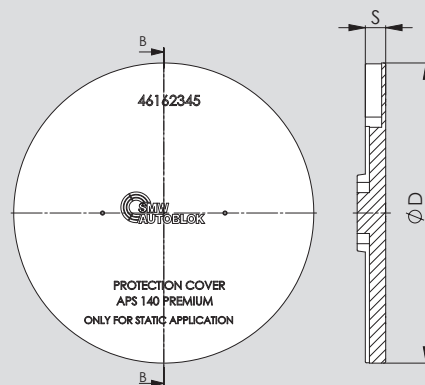
MAGNET PROTECTION COVERS

for all APS models

FOR BASIC MODULE FOR PREMIUM LIGHT MODULE

NON
ROTATINGONLY FOR
STATIC
APPLICATION

FOR PREMIUM MODULE with key mounted

NON
ROTATINGONLY FOR
STATIC
APPLICATION

ID.N.	MODEL	S	ØD	WEIGHT	ID.N.	MODEL	S	ØD	WEIGHT
460031*	MAGNET PROTECTION COVER FOR APS 140 BASIC	8	147	0,8 Kg	460030*	MAGNET PROTECTION COVER FOR APS 100 PREMIUM	8	107	0,45 Kg
46165730*	MAGNET PROTECTION COVER FOR APS 160 BASIC	8	167	1 Kg	46162345**	MAGNET PROTECTION COVER FOR APS 140 PREMIUM	10	147	0,45 Kg
					46162625**	MAGNET PROTECTION COVER FOR APS 190 PREMIUM	10	197	0,85 Kg
					46165033**	MAGNET PROTECTION COVER FOR APS 250 PREMIUM	10	257	1,5 Kg

NOTE: all APS Premium covers can be mounted on the Basic model.

* Steel ** Aluminium

2

MODULE HEIGHT EXTENSION APS



CONFIGURATIONS

- Without feedings integrated on machine
- With 2-4-6 feedings integrated on machine

MODULE HEIGHT EXTENSION

Without integrated feedings configuration possible scheme

(for example 3 axis machine)

APS Ø 100
one configuration

APS 100 E PREMIUM
(1 KEY)

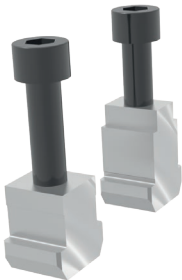
460005



**Module Height
Extension
APS 100**



T-NUTS SET
optionals



APS Ø 140
two configurations

APS 140 E PREMIUM
(1 KEY)

460002



Soluzion 1:
**Module Height
Extension
APS 140**



Soluzion 2:
**Module Height
Extension
APS 140
with SAB-1 valve**



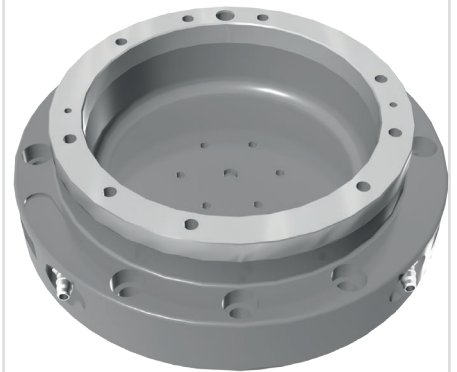
APS Ø 190
two configurations

APS 190 E PREMIUM
(1 KEY)

46165640



Soluzion 1:
**Module Height
Extension
APS 190**

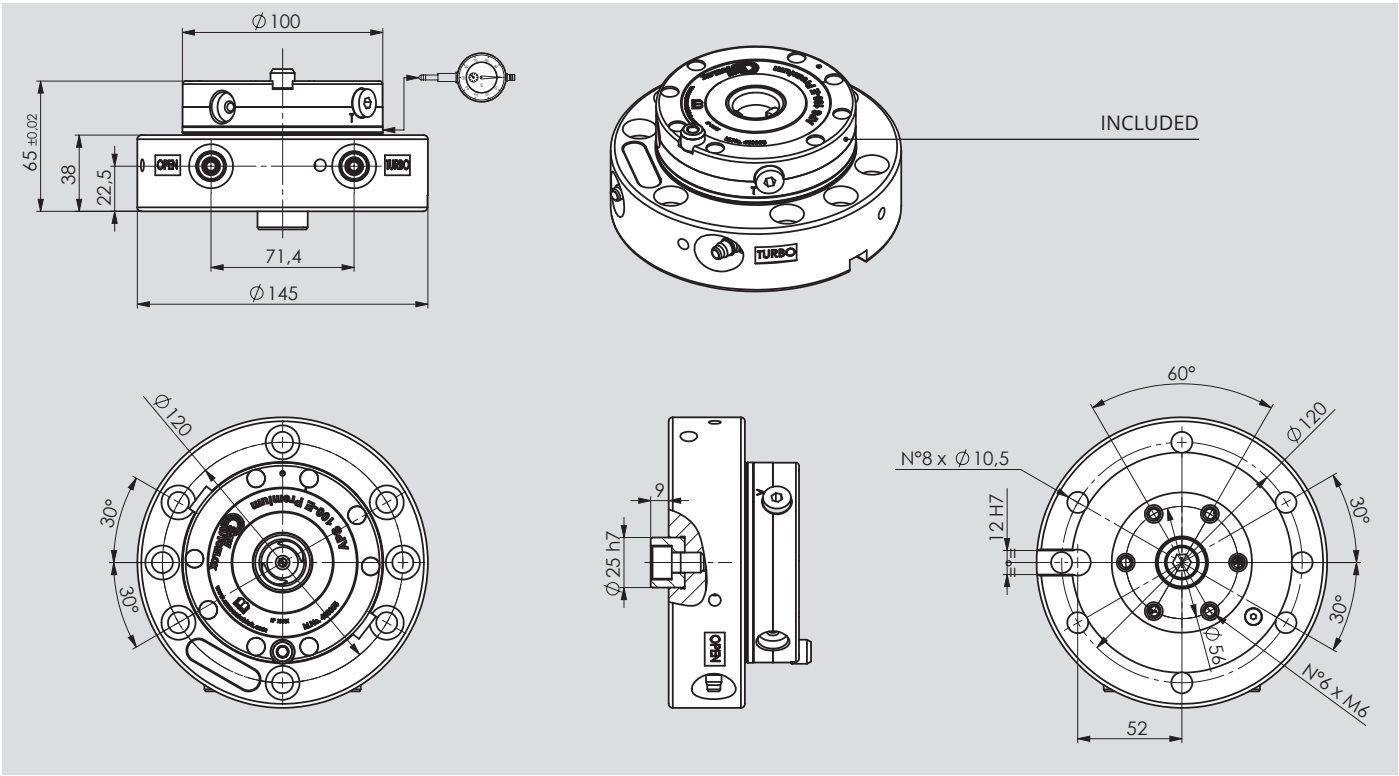


Soluzion 2:
**Module Height
Extension
APS 190
with SAB-1 valve**



ATTENTION: the pneumatic system of the pressure switch must signal the alarm condition and must prevent the pallet exchange on the APS or any robot operation when the inlet pressure is less than 6 bar.

MODULE HEIGHT EXTENSION with one APS 100 E PREMIUM



ID.N. MODULE HEIGHT EXTENSION (APS INCLUDED)	HEIGHT	WEIGHT
460110 MODULE EXTENSION APS 100 PREMIUM H65	65 mm	6 Kg

NOTE 1: for every unit is included the key Id.n. 46162133 (see page 20).

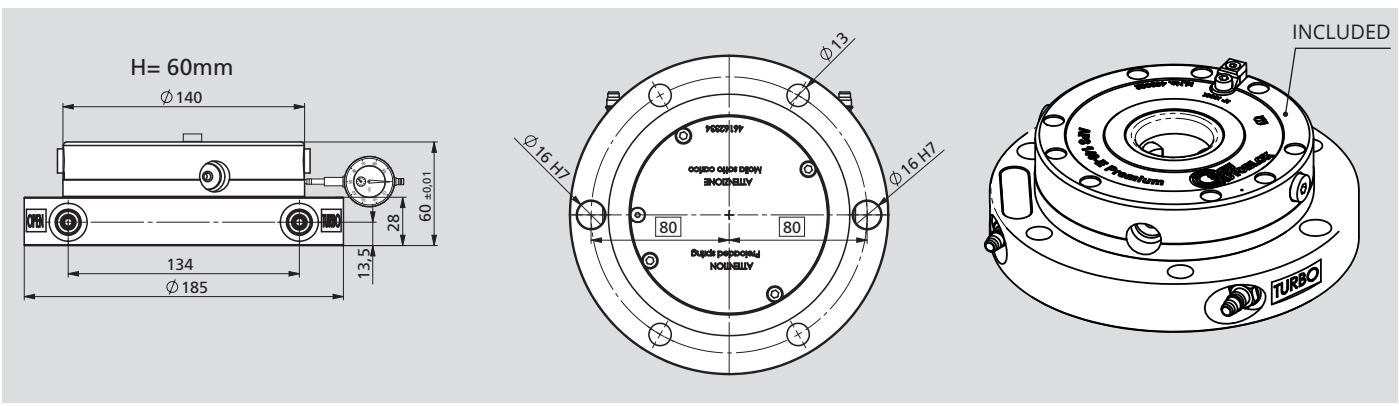
NOTE 2: OPTIONALS T-nuts set: - 46204100 with T-slot 12 / - 46204101 with T-slot 14 / - 46204102 with T-slot 18
Drawings and shares of these sets see page 29.

NOTE 3: the module height extension can also be mounted on APS 140 using the pin 46162355 like can see at drawing on page 52. (see also an example on page 25).

NOTE 4: when use the module in rotation (rpm 200-1000) request balancing (listed separately).

NOTE 5: the module extension is equipped with radial screws for the fine centering of the APS.

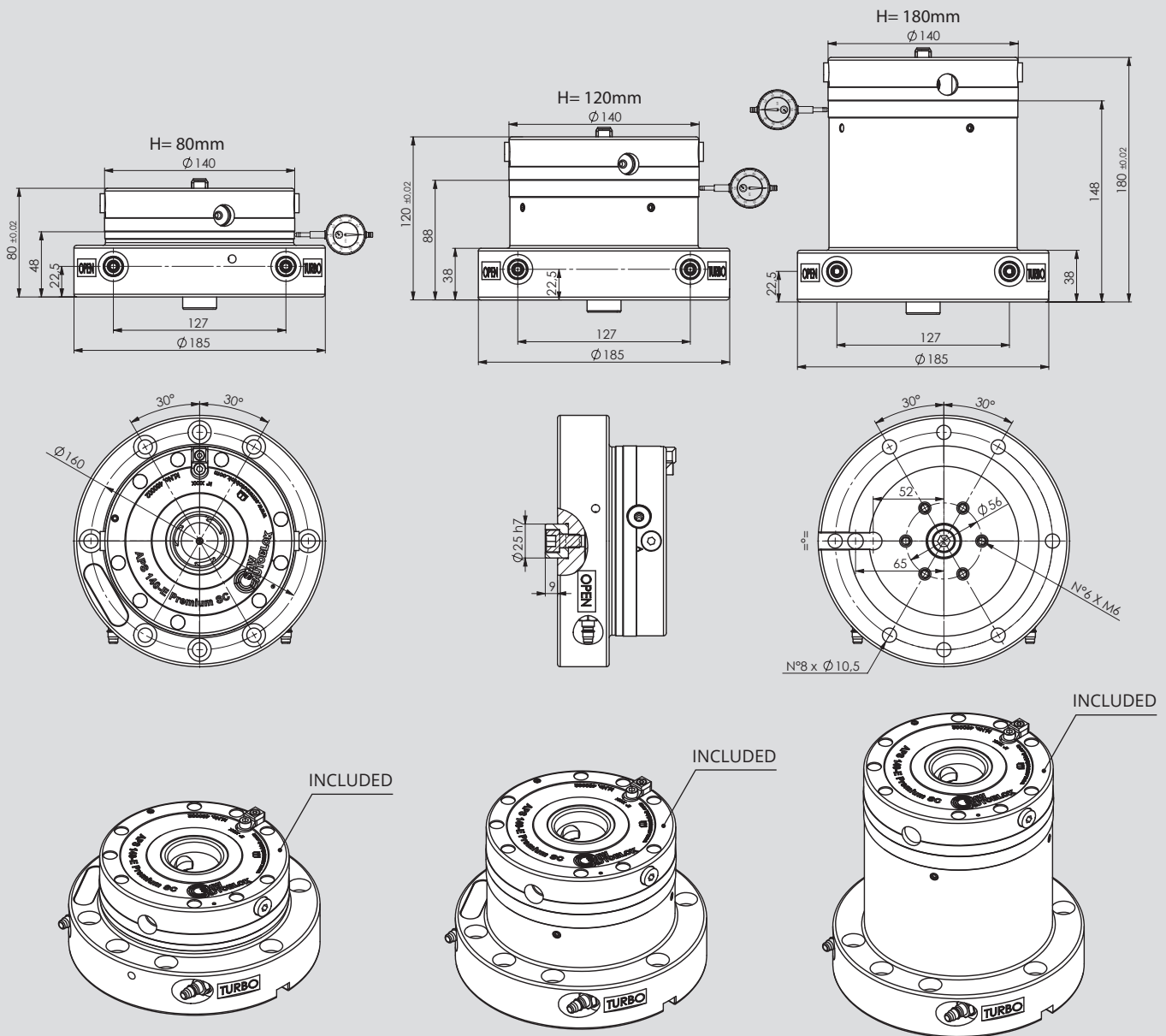
MODULE HEIGHT EXTENSION with one APS 140 E PREMIUM



ID.N. MODULE HEIGHT EXTENSION (APS INCLUDED)	HEIGHT	WEIGHT
460112 MODULE EXTENSION APS 140 PREMIUM H60	60 mm	8 Kg

NOTE 1: for every unit is included the key Id.n. 46162333 (see page 20 and example pag.25).

MODULE HEIGHT EXTENSION with APS 140 E PREMIUM



ID.N. MODULE HEIGHT EXTENSION (APS INCLUDED)	HEIGHT	WEIGHT
460113 MODULE EXTENSION APS 140 PREMIUM H80	80 mm	11 Kg
460114 MODULE EXTENSION APS 140 PREMIUM H120	120 mm	14 Kg
460115 MODULE EXTENSION APS 140 PREMIUM H180	180 mm	18 Kg

NOTE 1: for every unit is included the key Id.n. 46162333 (see page 20).

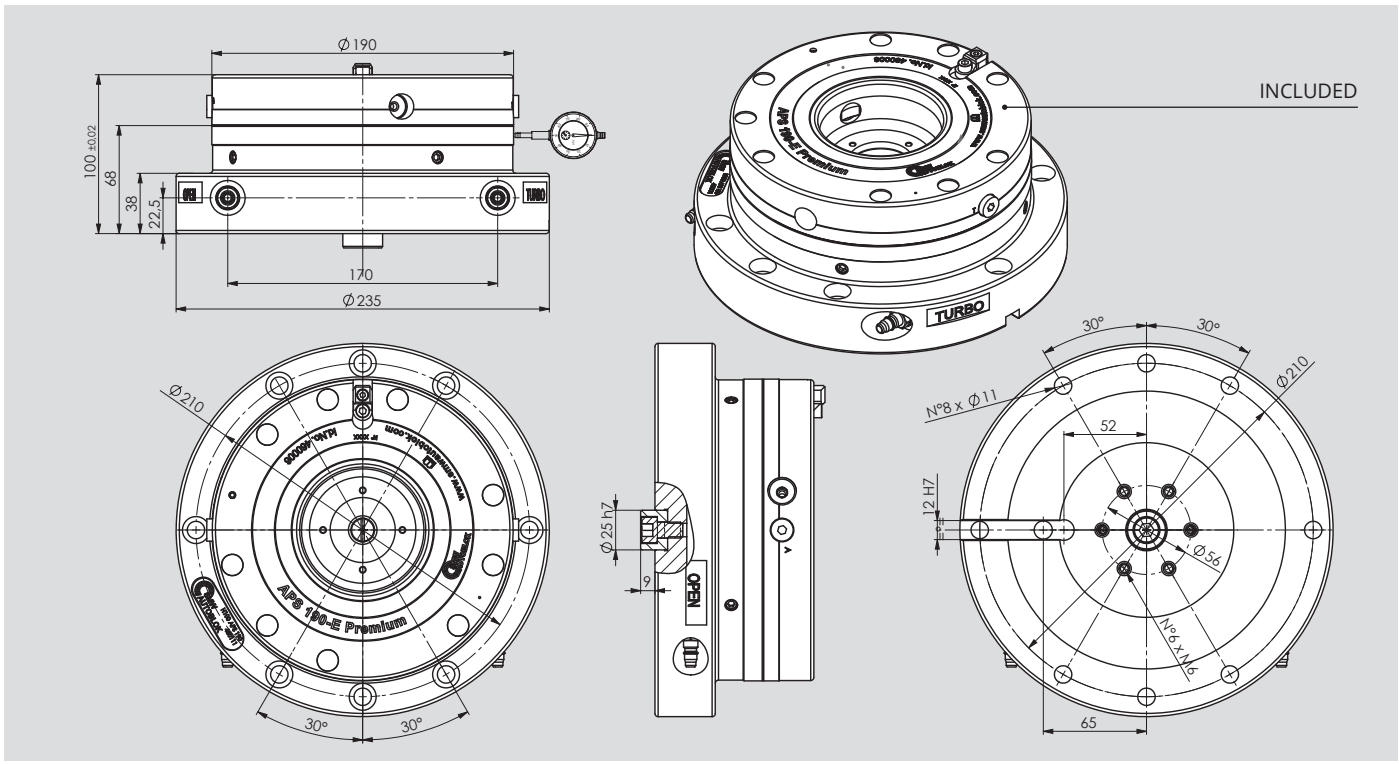
NOTE 2: OPTIONALS T-nuts set: - 46204100 with T-slot 12 / - 46204101 with T-slot 14 / - 46204102 with T-slot 18
Drawings and shares of these sets see page 29.

NOTE 3: the module height extension can also be mounted on APS 140 and APS 190 using respectively the pins 46162355 (APS 140) and 46162635 (APS 190) like can see at drawing on page 52. (see also an example on page 25).

NOTE 4: when use the module in rotation (rpm 200-1000) request balancing (listed separately).

NOTE 5: the module extension is equipped with radial screws for the fine centering of the APS.

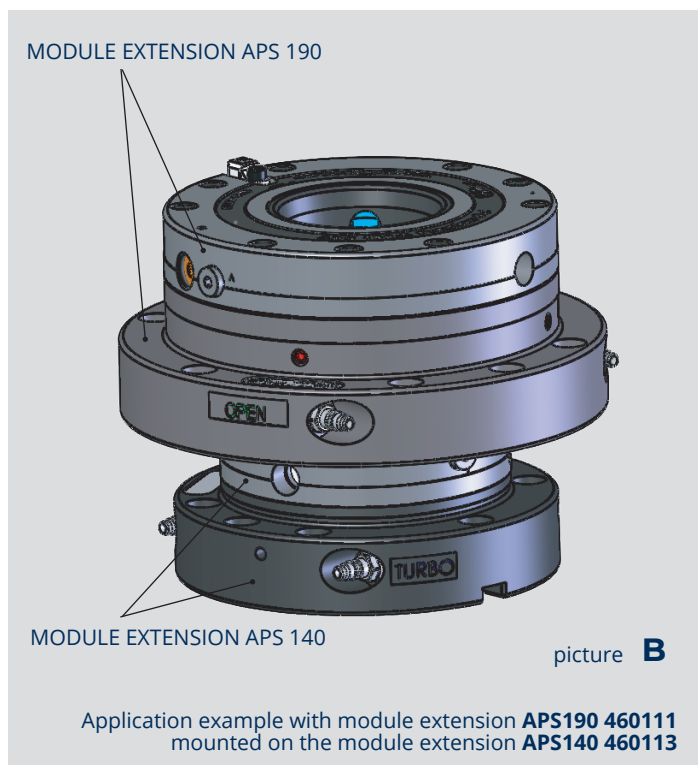
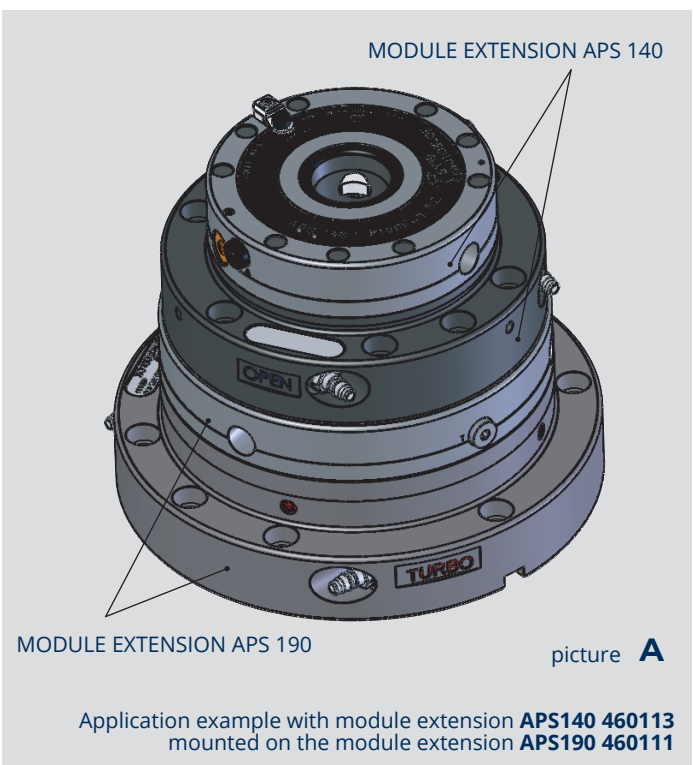
MODULE HEIGHT EXTENSION with APS 190 E PREMIUM



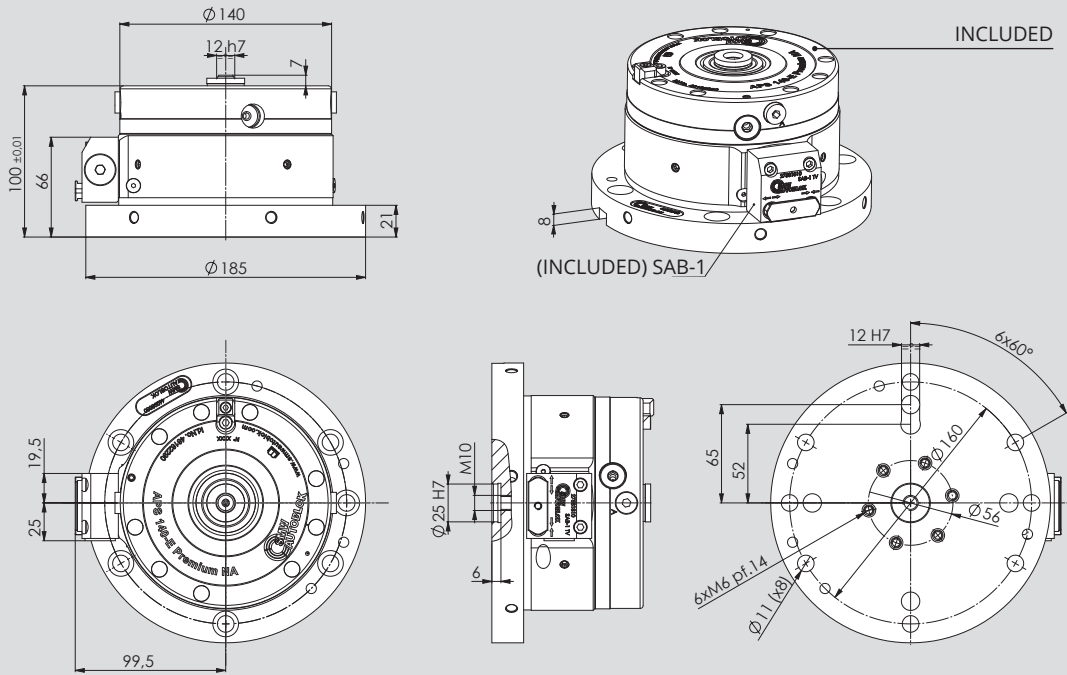
ID.N. MODULE HEIGHT EXTENSION (APS INCLUDED)	HEIGHT	WEIGHT
460111 MODULE EXTENSION APS 190 PREMIUM H100	100 mm	20,5 Kg

- NOTE 1:** for every unit is included the key Id.n. 46162333 (see page 20).
- NOTE 2:** OPTIONALS T-nuts set (see on page 29): - 46204100 with T-slot 12 / - 46204101 with T-slot 14 / - 46204102 with T-slot 18.
- NOTE 3:** the module height extension can also be mounted on APS 140 and APS 190 using respectively the pins 46162355 (APS 140) and 46162635 (APS 190) like can see at drawing on page 52. (see the drawing below).
- NOTE 4:** when use the module in rotation (rpm 200-1000) request balancing (listed separately).
- NOTE 5:** the module extension is equipped with radial screws for the fine centering of the APS.

MOUNTING EXAMPLES



ONE APS WITH SAB-1 VALVE MODULE HEIGHT EXTENSION with APS 140



ID.N. MODULE HEIGHT EXTENSION (APS INCLUDED)

46203030 MODULE HEIGHT EXTENSION APS 140 E PREMIUM H100 + SAB-1

HEIGHT

100 mm

WEIGHT

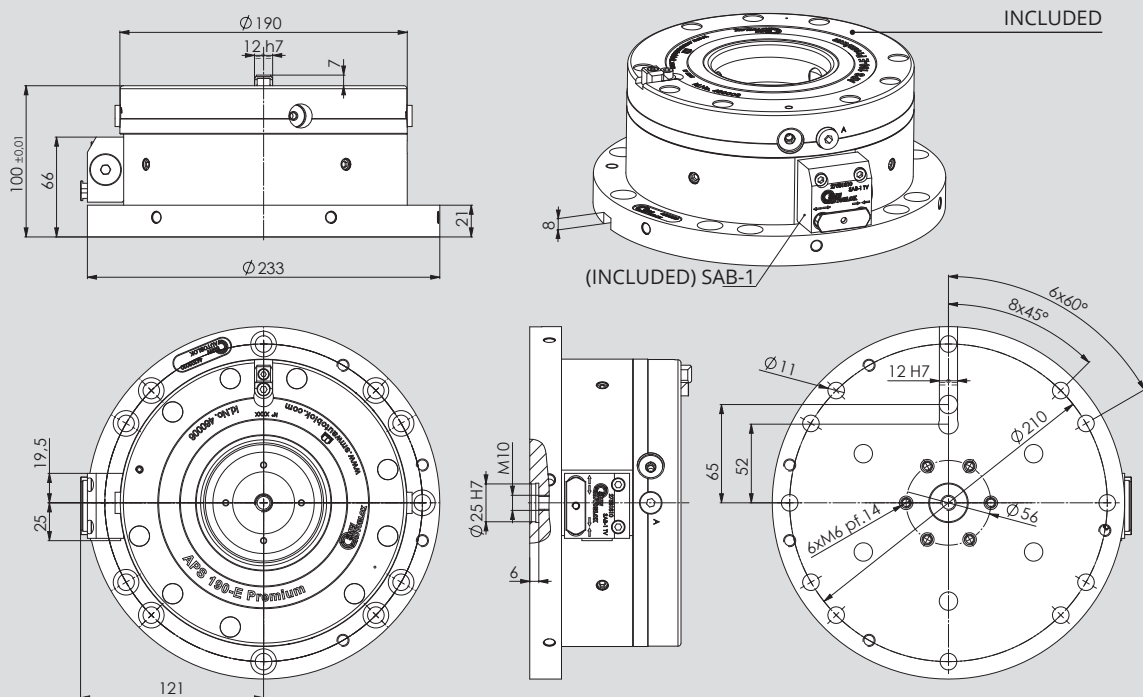
12 Kg

NOTE 1: when use the module in rotation (rpm 200-1000) request balancing (listed separately).

NOTE 2: the module extension is equipped with radial screws for the fine centering of the APS.

NOTE 3: the module height extension can also be mounted on APS 140 and APS 190 using respectively the pins 46162355 (APS 140) and 46162635 (APS 190) like can see at drawing on page 52. (see also an example on page 25).

ONE APS WITH SAB-1 VALVE MODULE HEIGHT EXTENSION with APS 190



ID.N. MODULE HEIGHT EXTENSION (APS INCLUDED)

46203020 MODULE HEIGHT EXTENSION APS 190 E PREMIUM H100 + SAB-1

HEIGHT

100 mm

WEIGHT

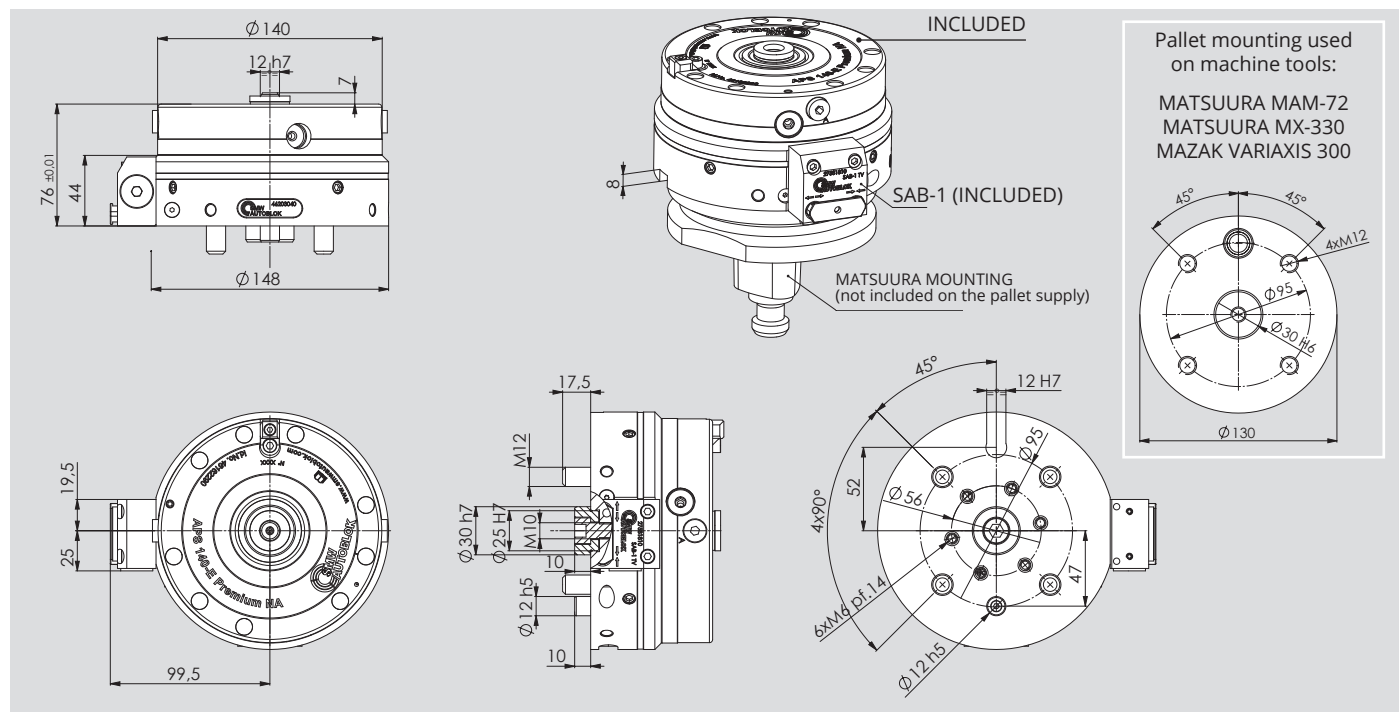
18 Kg

NOTE 1: when use the module in rotation (rpm 200-1000) request balancing (listed separately).

NOTE 2: the module extension is equipped with radial screws for the fine centering of the APS.

NOTE 3: the module height extension can also be mounted on APS 140 and APS 190 using respectively the pins 46162355 (APS 140) and 46162635 (APS 190) like can see at drawing on page 52. (see also an example on page 25).

ONE APS WITH SAB-1 VALVE D130 MODULE HEIGHT EXTENSION with APS 140

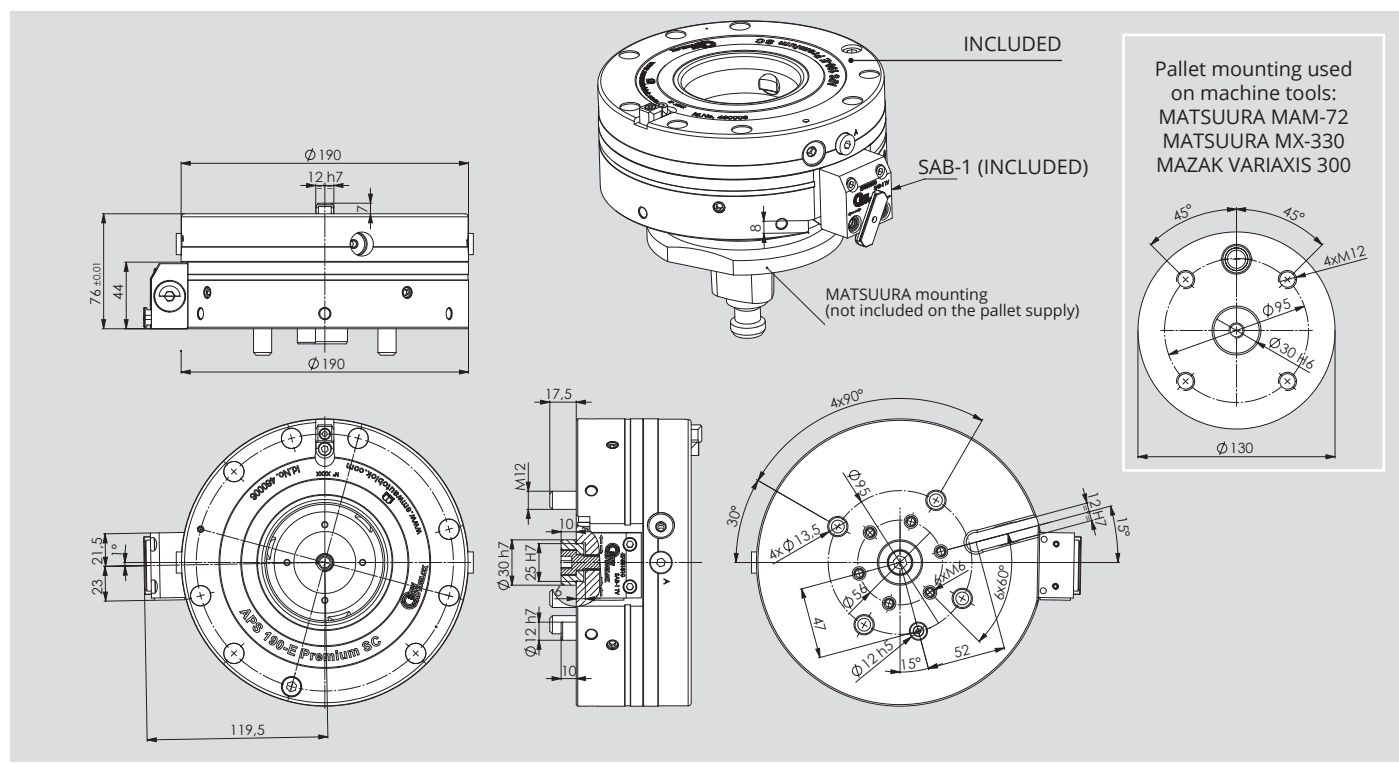


Pallet mounting used on machine tools:
 MATSUURA MAM-72
 MATSUURA MX-330
 MAZAK VARIAXIS 300

ID.N. MODULE HEIGHT EXTENSION (APS INCLUDED)	HEIGHT	WEIGHT
46203040 MODULE HEIGHT EXTENSION ONE APS 140 E PREMIUM H76 + SAB-1	76 mm	8,3 Kg

- NOTE 1:** when use the module in rotation (rpm 200-1000) request balancing (listed separately).
- NOTE 2:** the module extension is equipped with radial screws for the fine centering of the APS.
- NOTE 3:** the module height extension can also be mounted on APS 140 using the pin 46162355 like can see at drawing on page 52 (see the examples on page 25).

ONE APS WITH SAB-1 VALVE D130 MODULE HEIGHT EXTENSION with APS 190



Pallet mounting used on machine tools:
 MATSUURA MAM-72
 MATSUURA MX-330
 MAZAK VARIAXIS 300

ID.N. MODULE HEIGHT EXTENSION (APS INCLUDED)	HEIGHT	WEIGHT
41702150 MODULE HEIGHT EXTENSION ONE APS 190 E PREMIUM H76 + SAB-1	76 mm	14,5 Kg

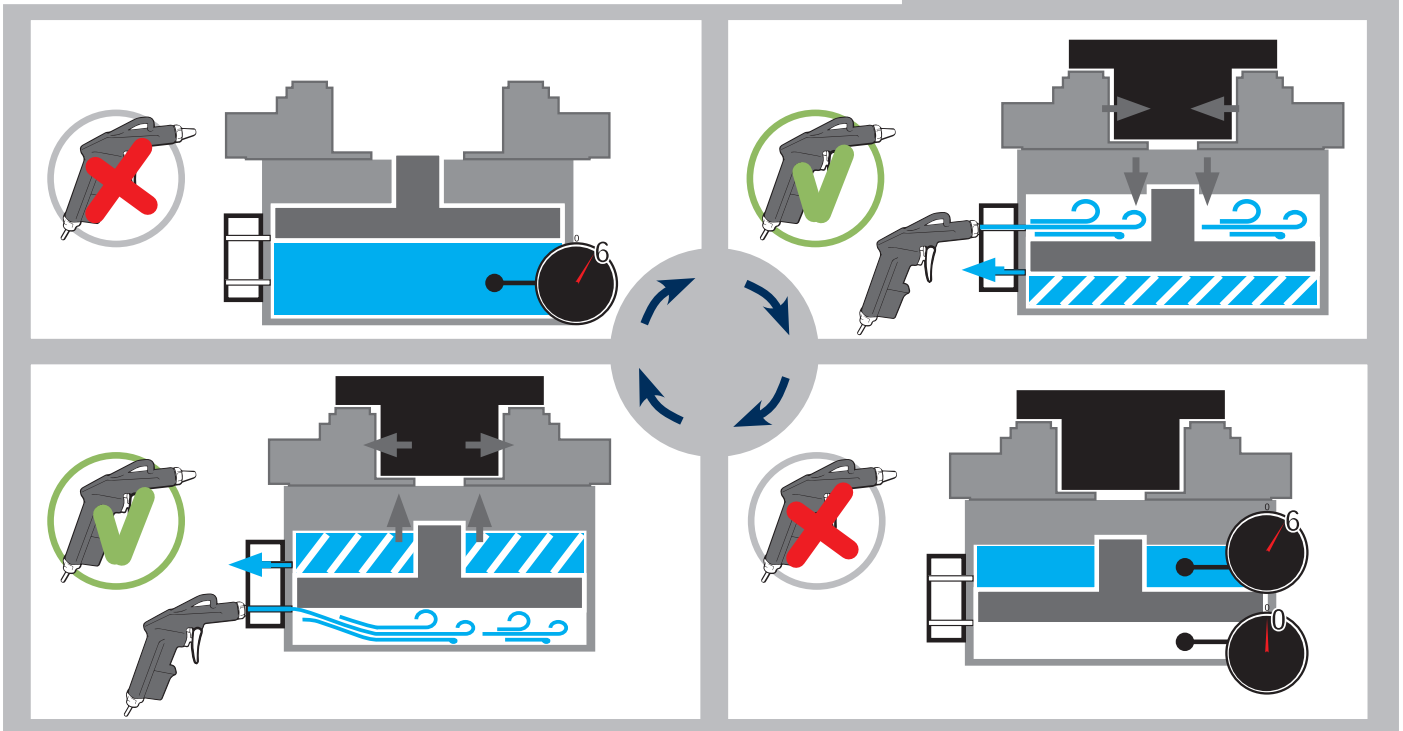
- NOTE 1:** when use the module in rotation (rpm 200-1000) request balancing (listed separately).
- NOTE 2:** the module extension is equipped with radial screws for the fine centering of the APS.
- NOTE 3:** the module height extension can also be mounted on APS 140 and APS 190 using respectively the pins 46162355 (APS 140) and 46162635 (APS 190) like can see at drawing on page 52. (see also an example on page 25).

SAB-1 safety valve



The Safety valve SAB-1 maintains air pressure in the cylinder pallet transportation / storage or machining without feed.

SAB-1 OPERATION

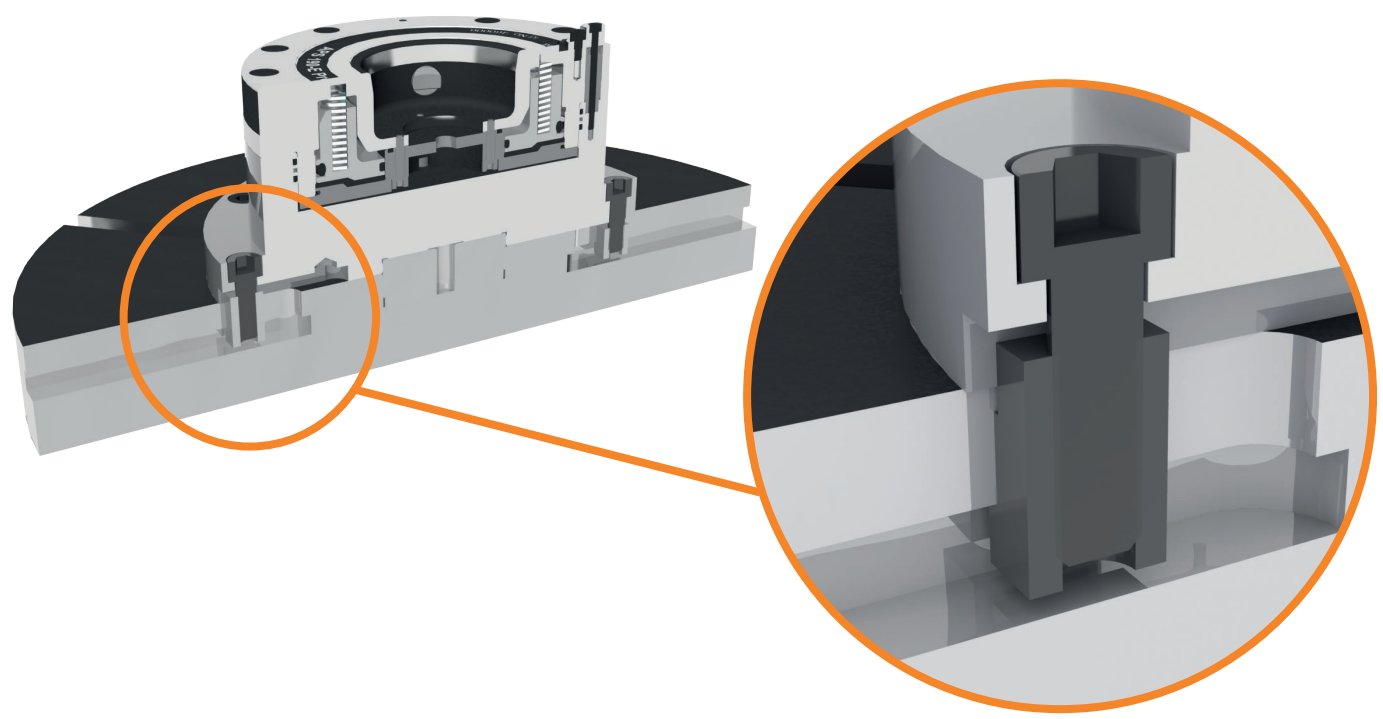


PNEUMATIC GUN with steel nozzle



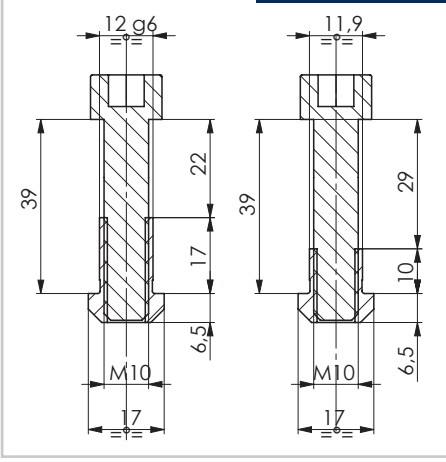
IMPORTANT:
USE WITH ALL PRODUCTS THE FILTER-
REGULATION-LUBRICATION GROUP **FRL**

T-NUTS SET for multiple plate APS and flange one APS



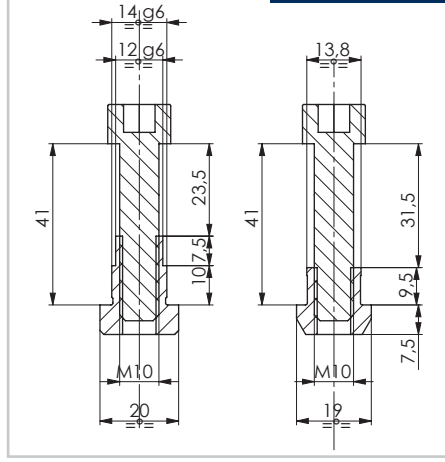
SET 9-T-NUTS T-SLOT 12
M10 for plate 4 APS 140

46204100



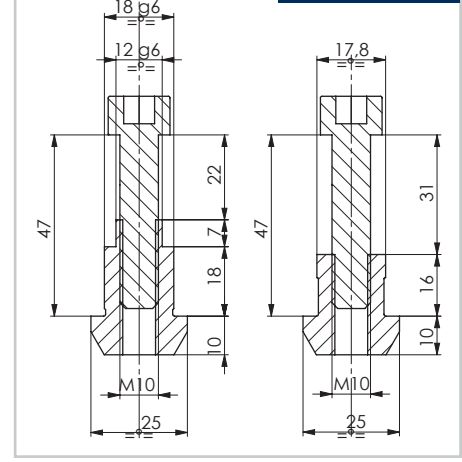
SET 9-T-NUTS T-SLOT 14
M10 for plate 4 APS 140

46204101



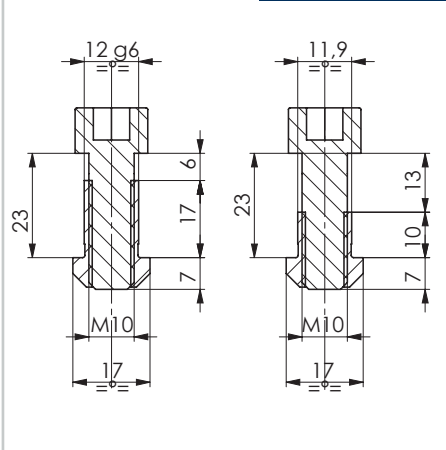
SET 9-T-NUTS T-SLOT 18
M10 for plate 4 APS 140

46204102



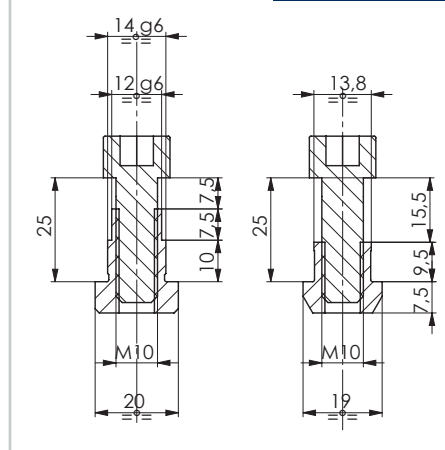
SET 8-T-NUTS T-SLOT 12
M10 for m.h.exten. one APS

46204103



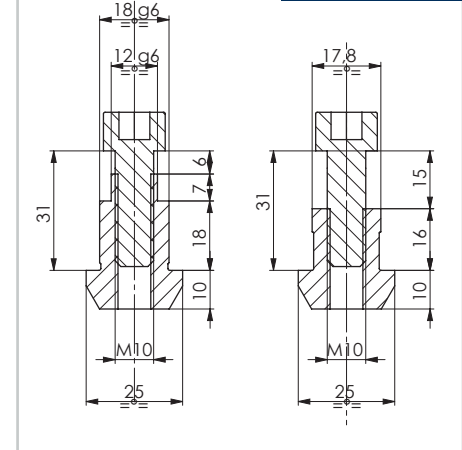
SET 8-T-NUTS T-SLOT 14
M10 for m.h.exten. one APS

46204104



SET 8-T-NUTS T-SLOT 18
M10 for m.h.exten. one APS

46204105



MODULE HEIGHT EXTENSION APS possible configurations scheme for 5 AXIS machine 2-4-6 FEEDINGS



MODULE HEIGHT EXTENSION COMPOSITION	2 FEEDINGS			4 FEEDINGS			6 FEEDINGS		
	ID.No.	Q.TY	PAG.	ID.No.	Q.TY	PAG.	ID.No.	Q.TY	PAG.
1 MODULE HEIGHT EXTENSION GROUP	46203000	1	31	46203000	1	31	46203000	1	31
2 APS 190	46165640	1	10	46162650	1	11	46162650	1	11
3 KEY	46162333	1	20	46162333	1	20	46162333	1	20
4 DISTRIBUTOR**	CUSTOMIZED	1	32	CUSTOMIZED	1	32	CUSTOMIZED	1	32
5 T-NUTS SET optional	to choose according to the T-Slot	1	29	to choose according to the T-Slot	1	29	to choose according to the T-Slot	1	29
6 MALE COUPLER*	-	-	-	71718106	2	-	71718106	4	-

* MALE COUPLER: the ID.n. refers to a single piece

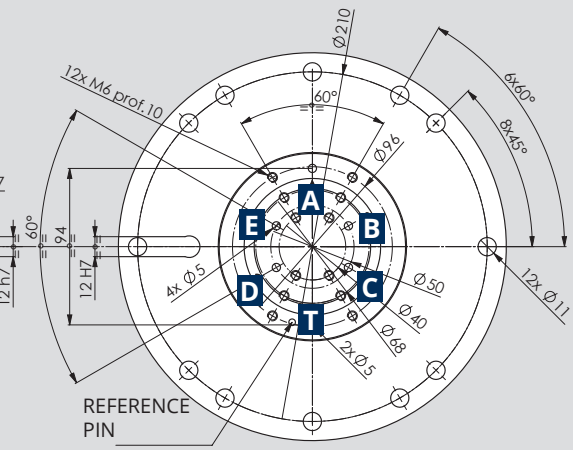
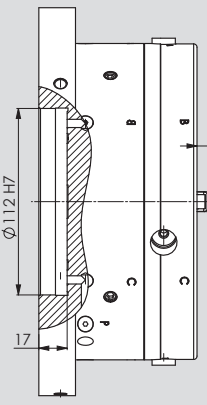
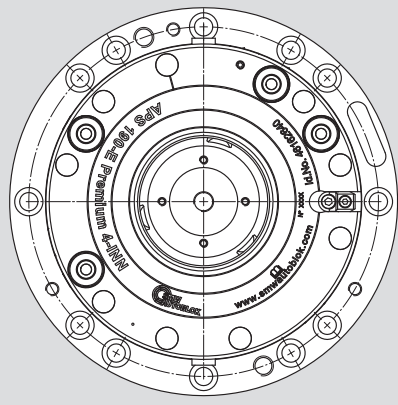
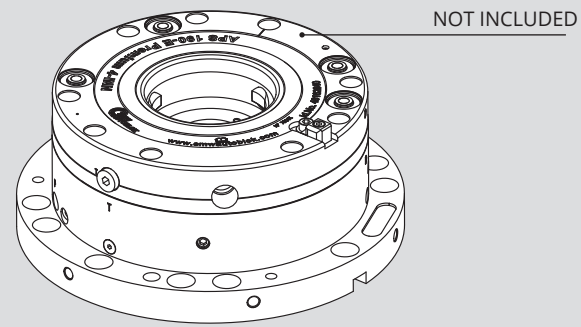
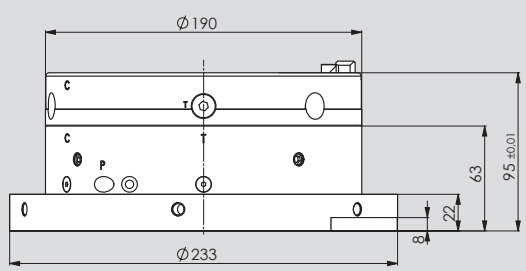
** DISTRIBUTOR EXAMPLE: to be designed specifically for each machine until to 6 feedings

NOTE 1: When use the module in rotation (rpm 200-1000) request balancing (listed separately).

NOTE 2: The module extension is equipped with radial screws for the fine centering of the APS.

ATTENTION: the pneumatic system of the pressure switch must signal the alarm condition and must prevent the pallet exchange on the APS or any robot operation when the inlet pressure is less than 6 bar.

MODULE HEIGHT EXTENSION APS prepared for 5 AXIS machine until 6 FEEDINGS



ID.N. (APS NOT INCLUDED)	HEIGHT	WEIGHT
46203000 MODULE HEIGHT EXTENSION GROUP N.6 FEEDINGS H95	95 mm	10,5 Kg

A APS open **T** Air sensing / TURBO APS
 The feedings **B C D E** are used on the pallet (see page 53) between pneumatics and hydraulics couplers put on the body of 190 APS (Id.n. 46162650). When on the pallet is mounted a TWIN VISE model STV or PT the feedings can be used in these different ways:

- B** TWIN VISE open **C** TWIN VISE closed **D** TWIN VISE Stroke control valve
- E** Air Sensing TWIN VISE or Driver pin Stroke control APS

The feeding **E** can not to be used on the pallet with the pneumatic / hydraulic coupler but can be used in another way to oversee the pneumatic stroke control of the APS 190; in this case the feeding is called **SC**.

Below a list of the possible configurations of the feedings:

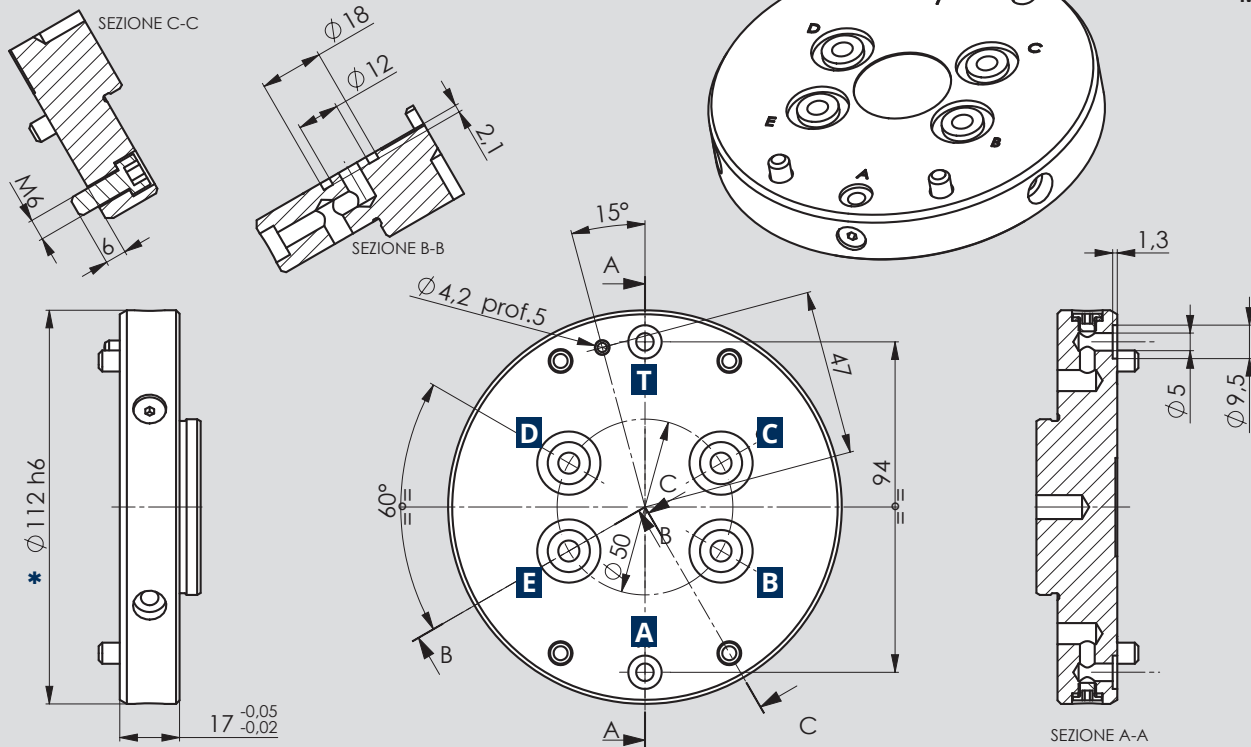
Configuration feedings

SOLUTION TYPE	sol. n.	A open APS	T TURBO APS	T Air Sensing APS control	T MINITURBO +Air Sensing APS	T TURBO or Air sensing or MINITURBO/ Air sensing	E SC Stroke control APS	C Air sensing APS control	Number of feedings transferred on the pallet with the couplers
with n.2 feedings	1								
	2								
	3								
with n.4 feedings	1								2
	2								2
	3								2
	4								2
	5								3
	6								1
	7								
with n.6 feedings	1								4
	2								4
	3								4
	4								3
	5								2

DISTRIBUTOR

specific for every machine until to 6 feedings

TO DESIGN AND
STUDY ON EVERY
MACHINE



CUSTOMER REQUEST DATA

required for the preparation of the offer

MACHINE NAME
details to the side

MACHINE TYPE
details to the side

VERTICAL
HORIZONTAL

3 AXIS | **4 AXIS** | **5 AXIS**

NUMBER OF FEEDINGS
hydraulics

0 | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8**

Specify the function:

NUMBER OF FEEDINGS
pneumatics

0 | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8**

Specify the function:

ROTARY TABLE DRAWINGS
delivered by the customer

YES | **NO**

FEEDINGS DRAWINGS ON THE ROTARY TABLE
delivered by the customer

YES | **NO**

MACHINE MANUAL
delivered by the customer

YES | **NO**

PALLET CHANGING
customer use

AUTOMATIC

MANUAL

DETAILED REQUEST OF THE CUSTOMER
enter here the specific notes

NOTE: for standard applications are sufficient pneumatics feedings of least 6.5 - 7 bar.

NOTE 1: the rotary table drawings, the feeding drawings and the detailed request of the customer are essential in order to do the correct interface between the machine and the clamping solutions.

NOTE 2: the adaptation of the machine software must be charged to the customer with detailed instructions given by SMW-Autoblok.

NOTE 3: if the veins seal seat size are $>\phi 112$ please contact the technical office SMW-Autoblok.

3

CLAMPING UNIT



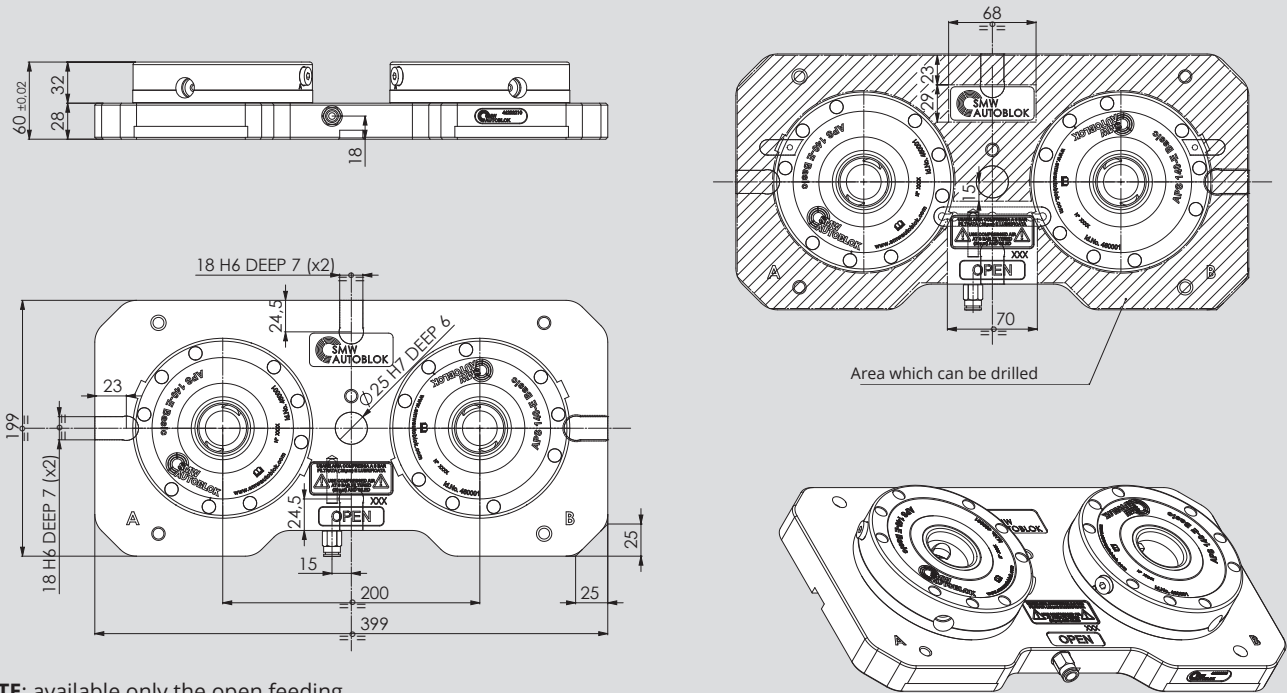
WITH AND WITHOUT FEEDINGS

Prepared until to 6 feedings
For 3-4-5 axis machines

CLAMPING UNIT FOR MULTIPLE APS WITHOUT INTEGRATED FEEDINGS ON MACHINE (FOR EXAMPLE 3 AXIS MACHINES)

1 FEEDING

2 APS 140 BASIC

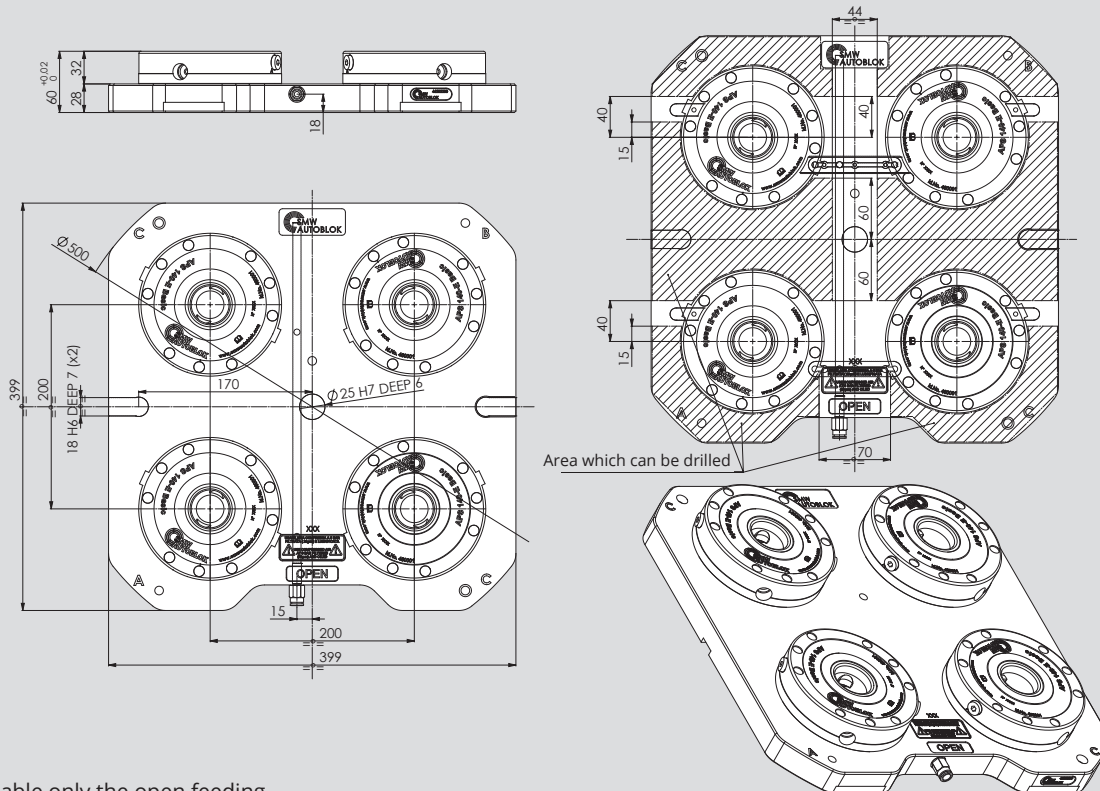


NOTE: available only the open feeding.

CLAMPING UNIT APS ID.No (APS included)
46202210 CLAMPING UNIT 2 APS140 BASIC

WEIGHT
21 Kg

4 APS 140 BASIC



NOTE: available only the open feeding.

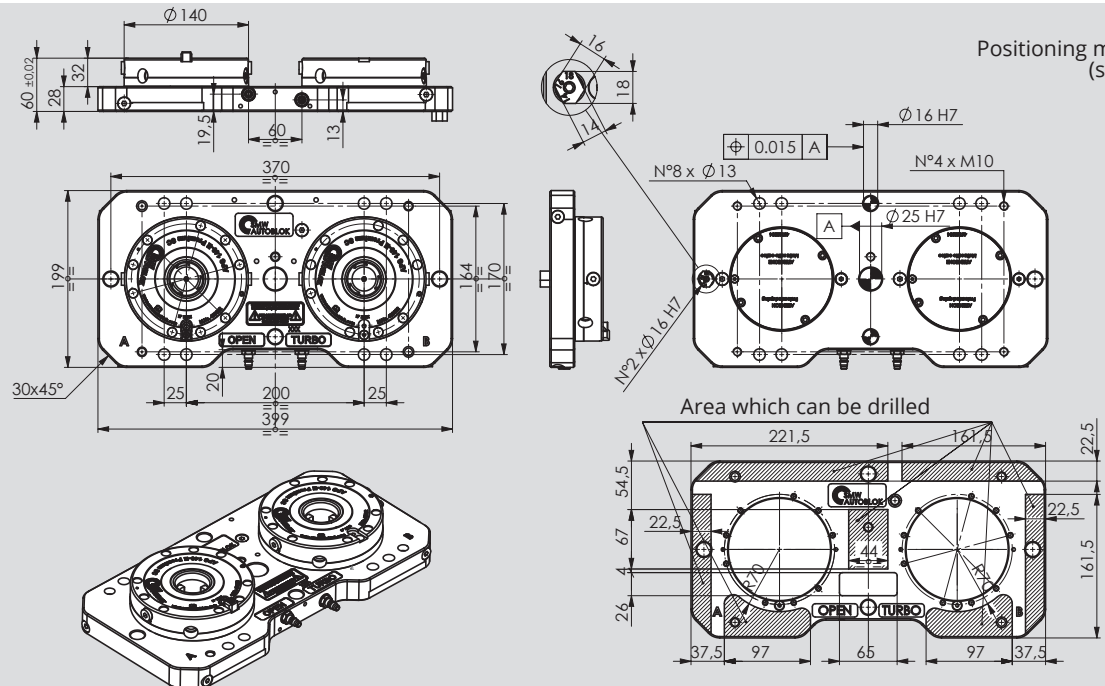
CLAMPING UNIT APS ID.No (APS included)
46202200 CLAMPING UNIT 4 APS140 BASIC

WEIGHT
42 Kg

2
FEEDINGS

**CLAMPING UNIT FOR MULTIPLE APS
WITHOUT INTEGRATED FEEDINGS ON MACHINE
(FOR EXAMPLE 3 AXIS MACHINES)**

2 APS 140 E PREMIUM LIGHT / BASIC

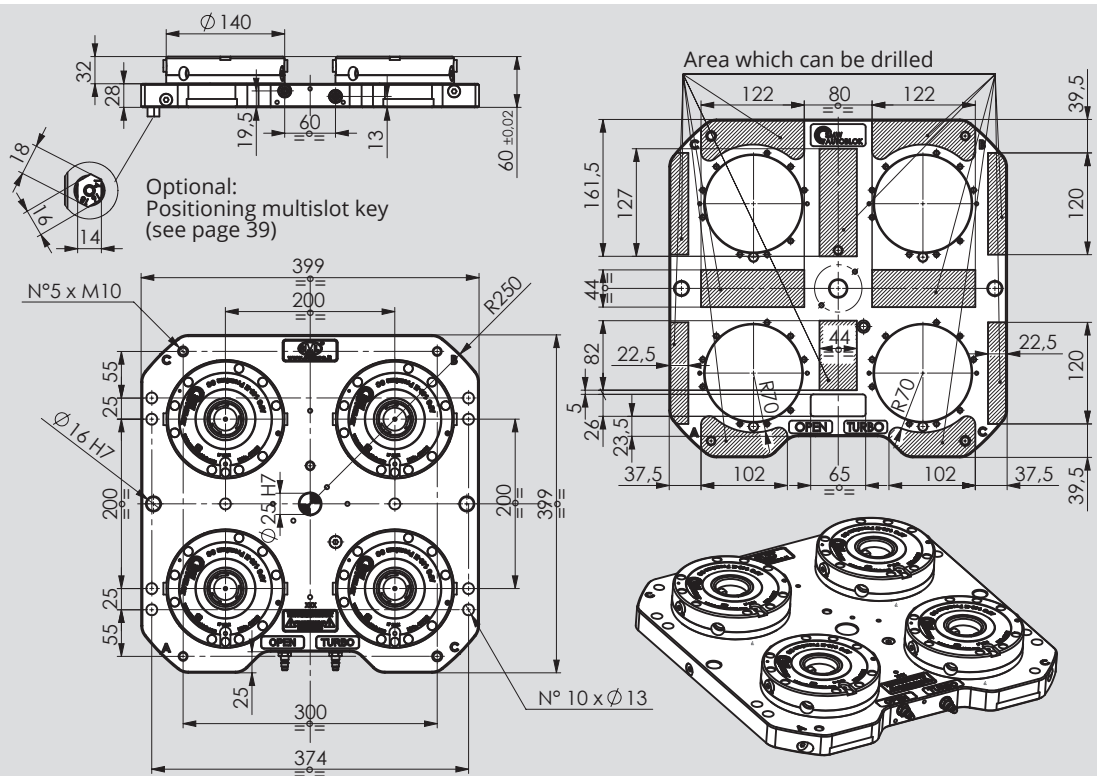


Optional:
Positioning multislot key
(see page 39)

NOTE: it's possible to order the PREMIUM configuration on request and with a surcharge. **NOTE 1:** available 2 feed.: OPEN and TURBO.

CLAMPING UNIT APS ID.N.	WEIGHT
460020 CLAMPING UNIT 2 APS140 E PREMIUM LIGHT 3 AXIS	21 Kg
460021 CLAMPING UNIT 2 APS140 E BASIC 3 AXIS	21 Kg

4 APS 140 E PREMIUM LIGHT / BASIC



Optional:
Positioning multislot key
(see page 39)

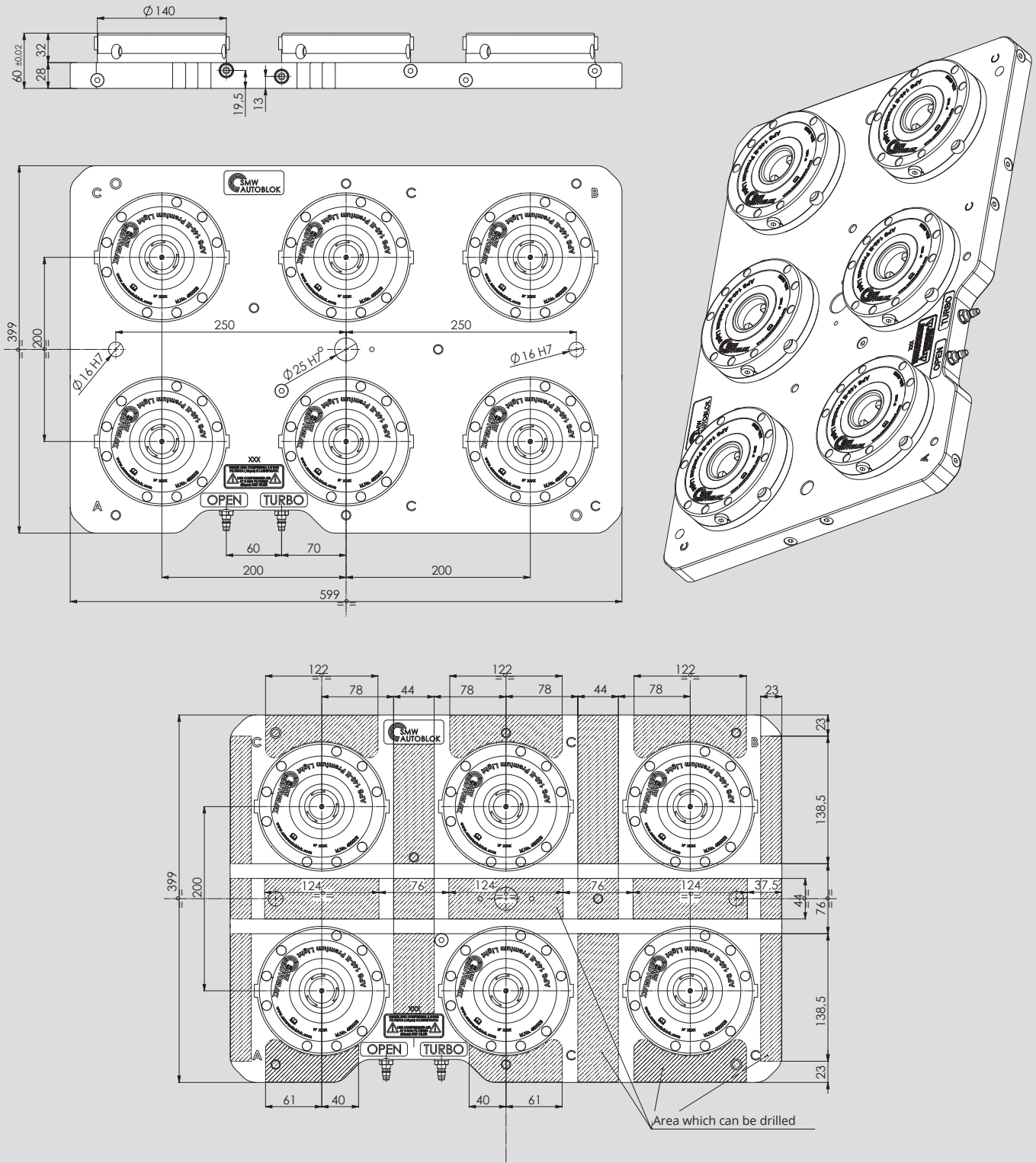
NOTE: it's possible to order the PREMIUM configuration on request and with a surcharge. **NOTE 1:** available 2 feed.: OPEN and TURBO.

CLAMPING UNIT APS ID.N.	WEIGHT
460022 CLAMPING UNIT 4 APS140 E PREMIUM LIGHT 3 AXIS	41 Kg
460023 CLAMPING UNIT 4 APS140 E BASIC 3 AXIS	41 Kg

CLAMPING UNIT FOR MULTIPLE APS WITHOUT INTEGRATED FEEDINGS ON MACHINE (FOR EXAMPLE 3 AXIS MACHINES)

2
FEEDINGS

6 APS 140 E PREMIUM LIGHT / BASIC



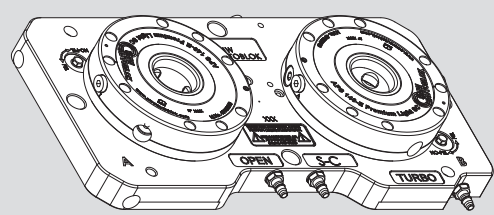
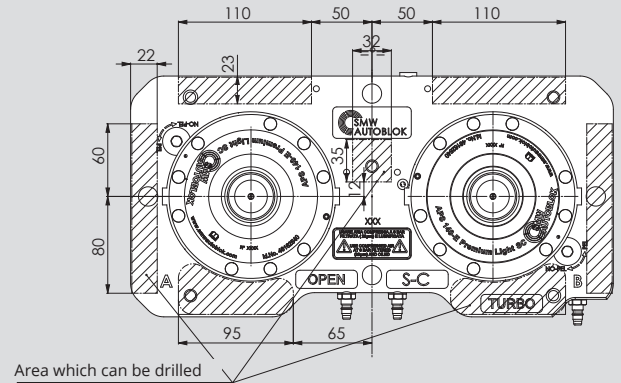
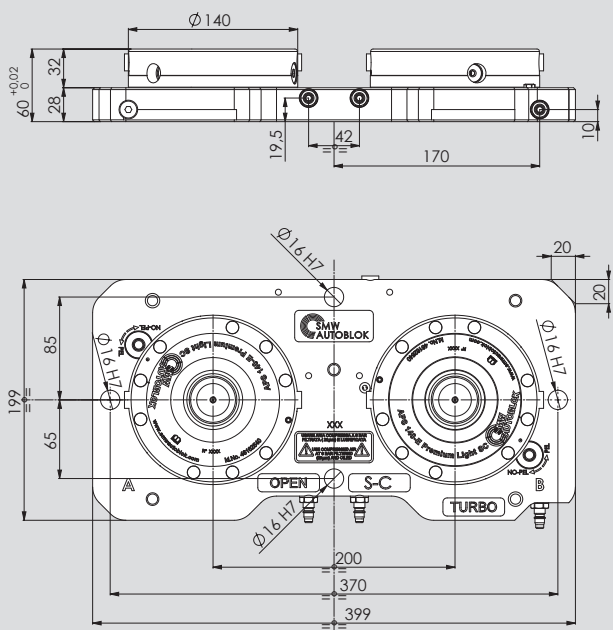
NOTE 1: available 2 feedings: OPEN and TURBO.

CLAMPING UNIT APS ID.No (APS included)	WEIGHT
46186672 CLAMPING UNIT 6 APS140 E BASIC	64 Kg
46186674 CLAMPING UNIT 6 APS140 E PREMIUM LIGHT	64 Kg

3 FEEDINGS

CLAMPING UNIT FOR MULTIPLE APS WITHOUT INTEGRATED FEEDINGS ON MACHINE (FOR EXAMPLE 3 AXIS MACHINES)

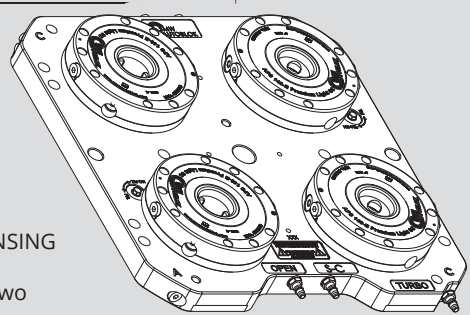
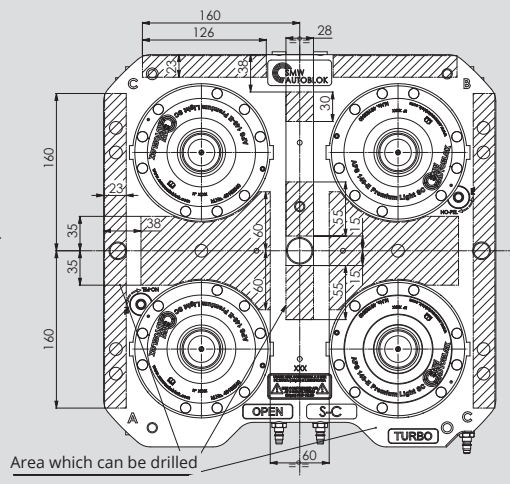
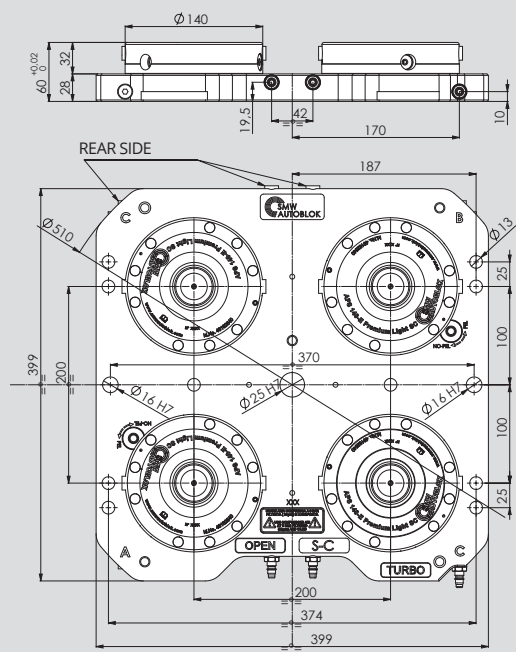
2 APS 140 E PREMIUM LIGHT SC



NOTE 1: available 3 feedings: OPEN, STROKE CONTROL SC and TURBO/AIR SENSING.
NOTE 2: when the Air sensing is not used, it's possible to exclude it thanks to two selectors placed on the front plate.

CLAMPING UNIT APS ID.No (APS included)	WEIGHT
46202230 CLAMPING UNIT 2 APS140 E PREMIUM LIGHT SC	21 Kg

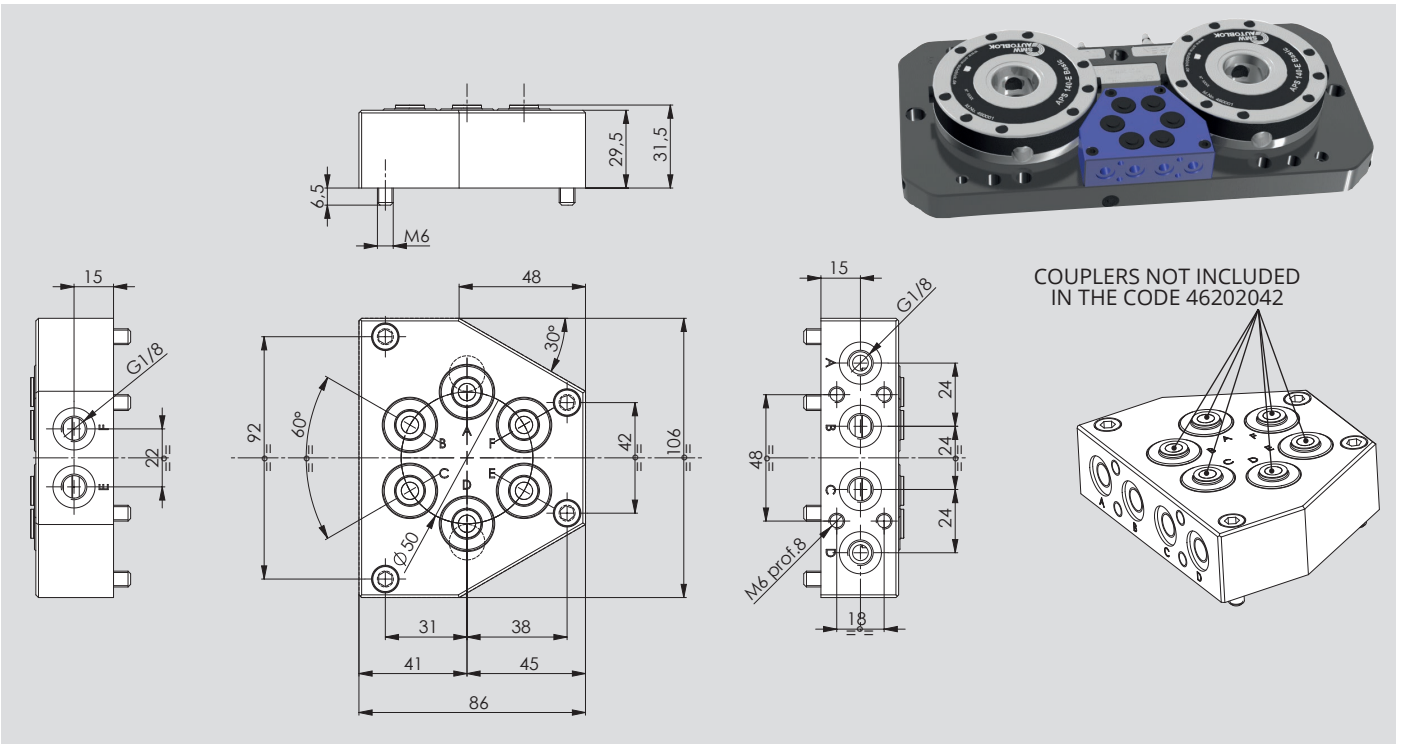
4 APS 140 E PREMIUM LIGHT SC



NOTE 1: available 3 feedings: OPEN, STROKE CONTROL SC and TURBO/AIR SENSING (it is possible to load also on rear side).
NOTE 2: when the Air sensing is not used, it's possible to exclude it thanks to two selectors placed on the front plate.

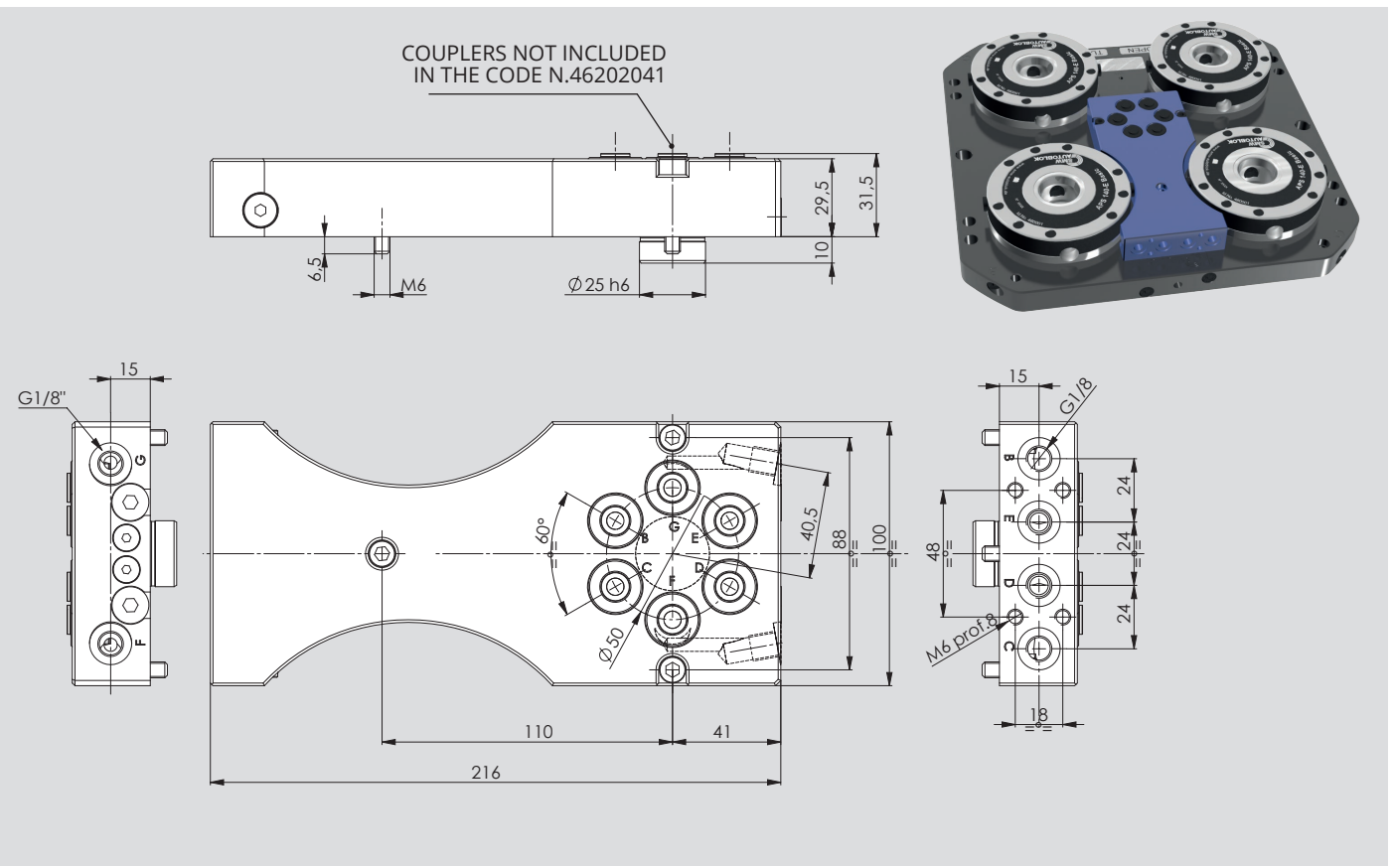
CLAMPING UNIT APS ID.No (APS included)	WEIGHT
46202220 CLAMPING UNIT 4 APS140 E PREMIUM LIGHT SC	41 Kg

MEDIA FEED WITHOUT INTEGRATED MACHINE FEEDINGS
(f.e. 3 axis machines) for plate with 2 APS 140 E



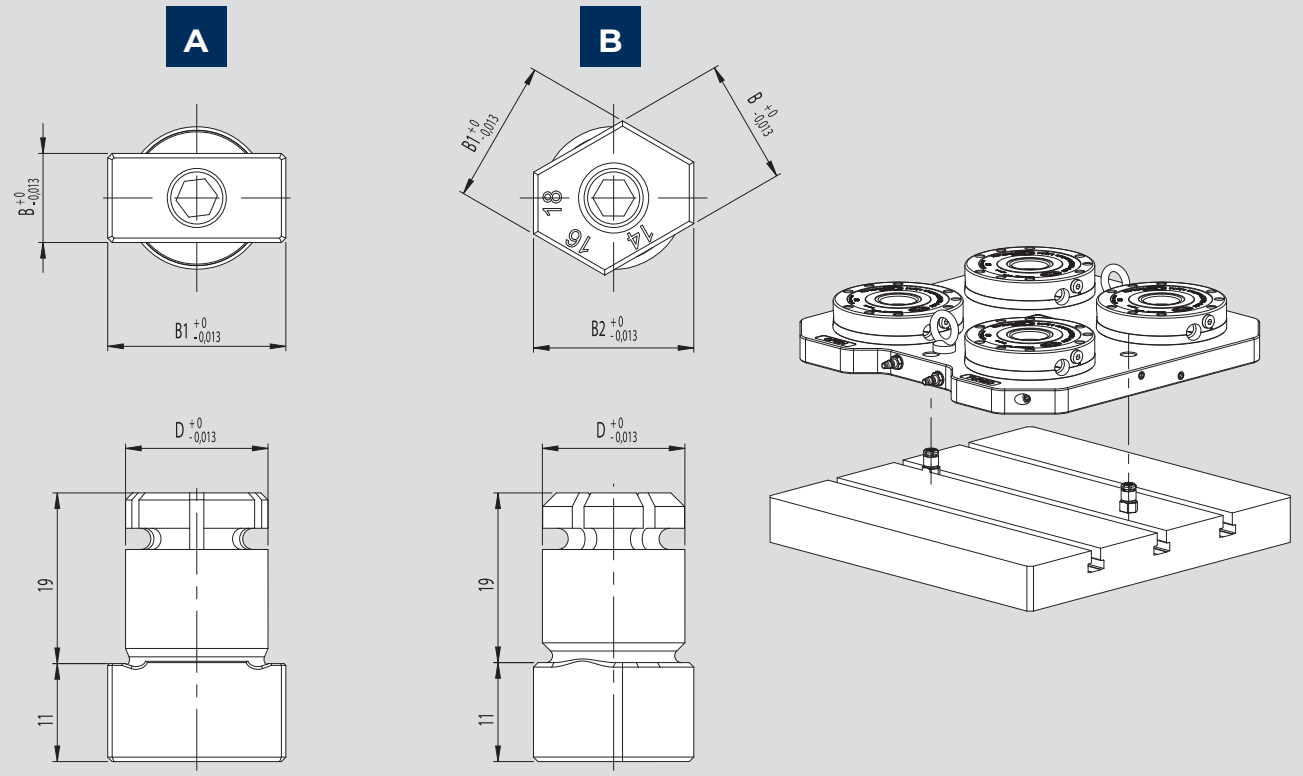
ID.N. MEDIA FEED PREPARED FOR N. 6 COUPLERS	POSSIBLE FEEDINGS	WEIGHT
46202042 MEDIA FEED PREPARED FOR N.6 MALE COUPLERS	A-B-C-D-E-F	1,6 Kg
71718106 MALE COUPLER	-	0.030 kg

MEDIA FEED WITHOUT INTEGRATED MACHINE FEEDINGS
(f.e. 3 axis machines) for plate with 4 APS 140 E



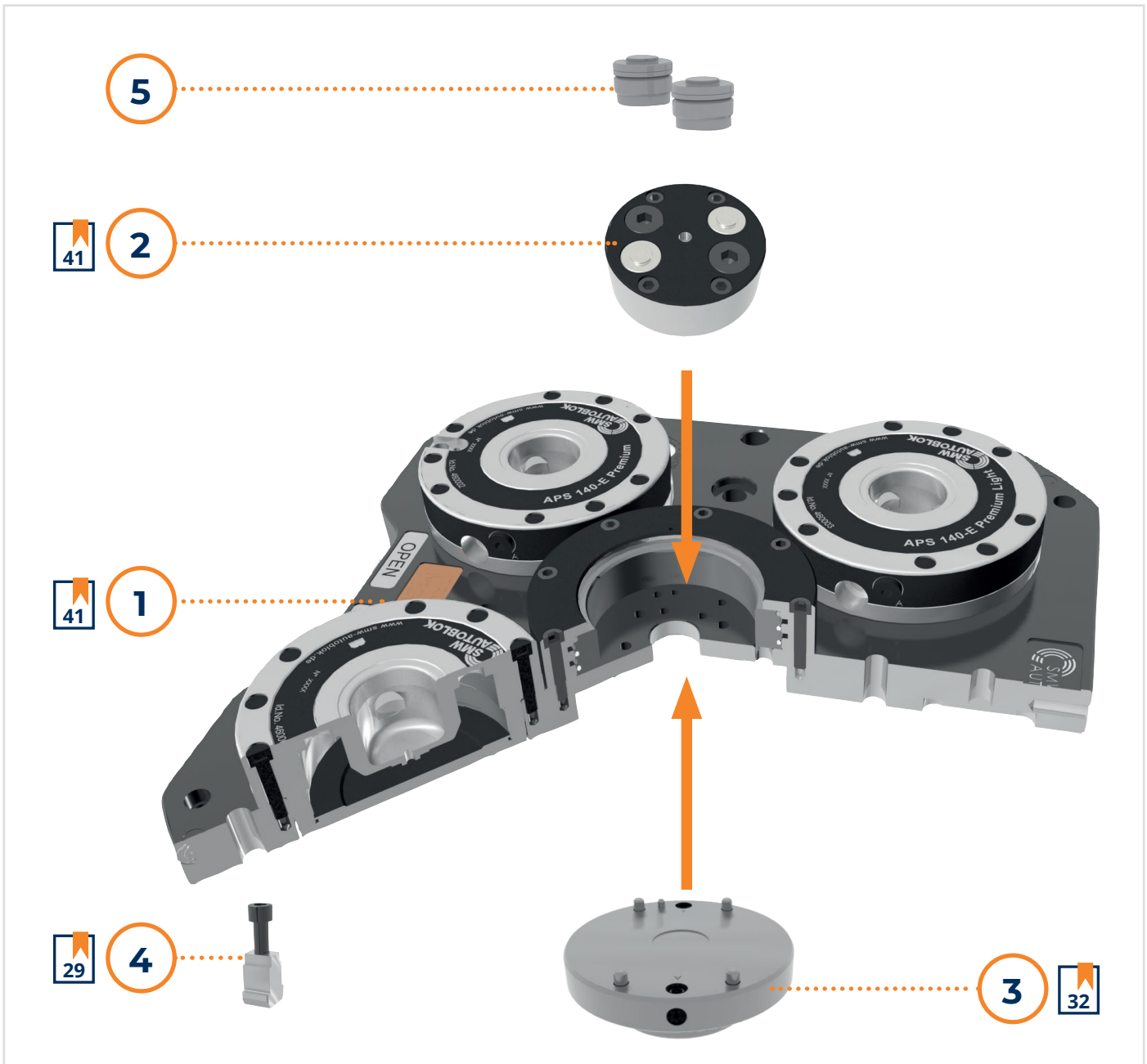
ID.N. MEDIA FEED PREPARED FOR N.6 COUPLERS	POSSIBLE FEEDINGS	WEIGHT
46202041 MEDIA FEED PREPARED FOR N.6 MALE COUPLERS	B-C-D-E-F-G	1,6 Kg
71718106 MALE COUPLER	-	0.030 kg

MULTISLOT KEY
optional



	ID.No.	D mm	B mm	B1 mm	B2 mm	Ø mm
A	71290181 MULTISLOT OPTIONAL KEY	16	12	22	-	16.01±0.01
B	71290182 MULTISLOT OPTIONAL KEY	16	14	16	18	16.01±0.01
A	71290183 MULTISLOT OPTIONAL KEY	16	10	20	-	16.01±0.01
B	71290184 MULTISLOT OPTIONAL KEY	20	24	28	32	20.01±0.01

CLAMPING UNIT FOR AUTOMATION WITH 4 APS 140 AND FEEDINGS FOR 5 AXIS possible configuration scheme for 5 axis machines 2-4-6 FEEDINGS



CLAMPING UNIT COMPOSITION	2 FEEDINGS			4 FEEDINGS			6 FEEDINGS		
	ID.No.	Q.TY	PAG.	ID.No.	Q.TY	PAG.	ID.No.	Q.TY	PAG.
1 CLAMPING UNIT with 4 APS 140	46202000	1	41	46202000	1	41	46202000	1	41
2 MEDIA FEED	Cover supplied***	-	-	46202026***	1	41	46202026***	1	41
3 DISTRIBUTOR**	CUSTOMIZED	1	32	CUSTOMIZED	1	32	CUSTOMIZED	1	32
4 T-NUTS SET	to choose according to the T-Slot	1	29	to choose according to the T-Slot	1	29	to choose according to the T-Slot	1	29
5 MALE COUPLER*	-	-	-	71718106	2	-	71718106	4	-

* MALE COUPLER: the ID.n. refers to a single piece

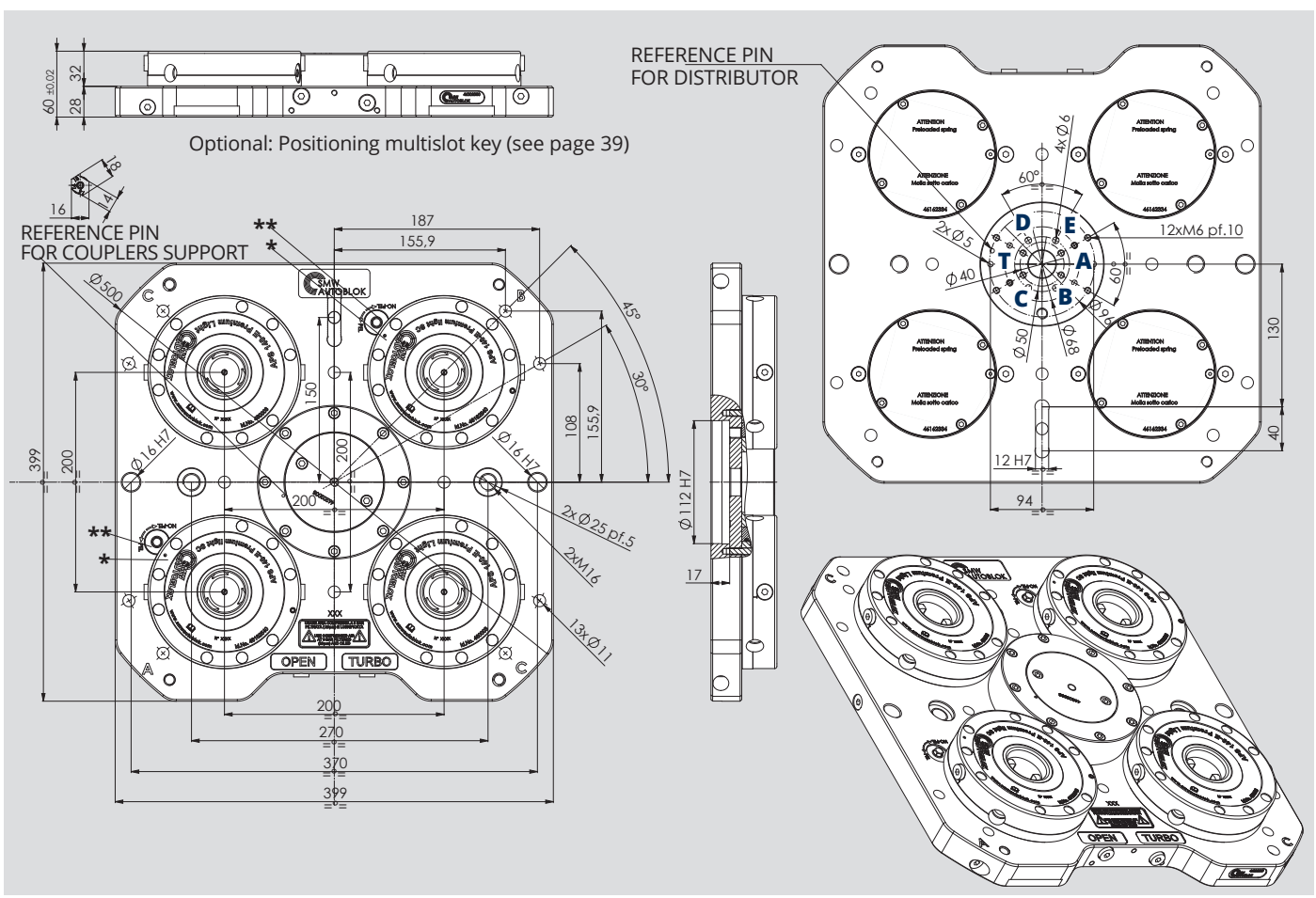
** CUSTOMIZED DISTRIBUTOR EXAMPLE: to be designed specifically for each machine until to 6 feedings

*** To use the Media Feed 46202026 it's necessary to remove the supplied central cover supplied.

ATTENTION: the pneumatic system of the pressure switch must signal the alarm condition and must prevent the pallet exchange on the APS or any robot operation when the inlet pressure is less than 6 bar.

CLAMPING UNIT FOR AUTOMATION WITH MULTIPLE APS 5 AXIS 2-4-6 FEEDINGS

with 4 APS 140 E PREMIUM LIGHT SC



ID.N. (INCLUDED APS)	WEIGHT
4620200 CLAMPING UNIT 4 APS140 E PREMIUM LIGHT SC FOR 5 AXIS	43 Kg

A APS open **T** Air sensing/Turbo APS

The feedings **B C D E** are transferred on the pallet (see pages 64-65) between pneumatics and hydraulics couplers put on the body of the APS (Id.n. 4620206). If on the pallet is mounted one or more TWIN VISE model STV or PT the feedings can be used in these different ways:

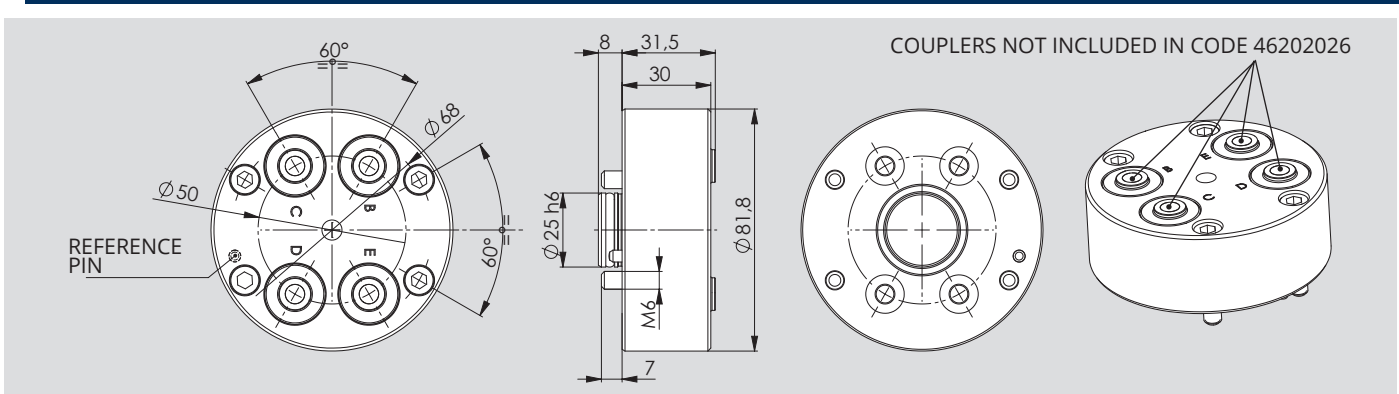
- B** TWIN VISE open **C** TWIN VISE closed **D** Stroke control valve TWIN VISE
- E** Air sensing TWIN VISE

***Note 1:** can be used the Air sensing on the plate for the 5 axis using the TURBO feeding.

****Note 2:** when don't use the Air sensing, it can be excluded between two selectors present on the plate face.

MEDIA FEED 5 AXIS 2-4-6 FEEDINGS

for plate with 4 APS 140 E PREMIUM LIGHT SC



MEDIA FEED PREPARED FOR 4 COUPLERS (AT MAXIMUM)	Possible feedings	WEIGHT
4620206 - MEDIA FEED WITH 4 SEAT MALE COUPLERS	B-C-D-E	1,2 kg
71718106 - MALE COUPLER	-	0,030 kg