



Torques

13 Torques

All Synventive parts are to be tightened to the prescribed torques specified in the following table.

The values given in the table refer to a cold condition (room temperature).

13.1 Relevant Parts attached with Screws pursuant to ISO 4762 (DIN 912)

- All screw connections of the actuators with socket head cap screws.
- All screw connections on the manifold and the mold.
- All screw connections of the A series inlet bushings (e.g. ABK etc.).
- All other components, such as protective heat shields, tie-down straps etc. are not deemed to be the subject of this manual, and therefore are not included. Information on these torques, not specified herein, shall be given to the workers by qualified professional personnel as needed.

NOTICE

A list of torque values is contained on each customer drawing and is binding upon all departments using the drawing.

13.2 Tool Specifications

A properly calibrated torque wrench must be used for the components in the list on the next page.



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13.3 Instructions on Torques for Synventive parts

Table 9: List of torques for Synventive part

| Torques – Nozzles | | | | | |
|-------------------------------------|------------------------------------|-------------|---------------------------|-----|--------|
| API | | | | | |
| | Parts | Thread size | Wrench size | Nm | ft-lbs |
| 06E-02 | Nozzle body | M16x1 | HEX 15 | 45 | 33 |
| 06S-02 | Nozzle body | M16x1 | HEX 32 via Adapt. | 45 | 33 |
| 06E-02 / 06S-02 | Nozzle tip | M10x0,75 | HEX 10 | 18 | 13 |
| 09E | Nozzle body | M22x1,5 | HEX 19 | 100 | 74 |
| 09S | Nozzle body | M22x1,5 | HEX 32 via Adapt. | 100 | 74 |
| 09E / 09S | Nozzle tip | M15x1 | HEX 15 | 35 | 26 |
| 12E-06 /12S-06 | Nozzle body | M27x1 | HEX 24 | 175 | 130 |
| 12E-06 / 12S-06 | Nozzle tip | M20x1 | HEX 21 | 100 | 74 |
| 16E-06 /16S-06 | Nozzle body | M32x1,5 | HEX 32 / HEX 46 via Adapt | 340 | 250 |
| 16E-06 / 16S-06 | Nozzle tip | M27x1 | HEX 24/27 | 200 | 148 |
| 12EX16-03 | Nozzle tip | M20x1 | HEX 21 | 100 | 74 |
| 22E-06 / 22S-06 | Nozzle body | M42x1,5 | HEX 41 | 440 | 325 |
| 22E-06 | Nozzle tip | M34x1,5 | HEX 32 | 400 | 292 |
| 16EX22-03 | Nozzle tip | M27x1 | HEX 24/27 | 200 | 148 |
| 22E-06 / 22S-06 | Nozzle tip | M34x1,5 | HEX 32 | 400 | 295 |
| APT | | | | | |
| | Parts | Thread size | Wrench size | NM | ft-lbs |
| SR-8 | Nozzle tip | M12x1 | HEX 14 | 30 | 22 |
| T-16 | Nozzle body | M45x2 | HEX 41 | 400 | 300 |
| T-16 | Nozzle tip | M27x1 | HEX 26 | 200 | 148 |
| SR-16 | Nozzle tip | M27x1 | HEX 26 | 200 | 148 |
| T-20 | Nozzle body | M52x3 | HEX 46 | 470 | 350 |
| T-20 | Nozzle tip | M36x2 | HEX 36 | 340 | 250 |
| SR-20 | Nozzle tip | M25x1,5 | HEX 27 | 270 | 200 |
| T-24 | Nozzle body | M60x3 | HEX 57 | 675 | 500 |
| T-24 | Nozzle tip | M40x1,5 | HEX 38 | 340 | 250 |
| SR-24 | Nozzle tip | M33x2 | HEX 38 | 270 | 200 |
| Torques – Manifold Parts and Others | | | | | |
| | Parts | Thread size | Wrench size | Nm | ft-lbs |
| | IB24 Inlet bushing | M24x1,5 | HEX 21 | 120 | 89 |
| | IB32 Inlet bushing | M32x1,5 | HEX 27 | 260 | 192 |
| | IB50 Inlet bushing | M48x1,5 | HEX 46 | 400 | 295 |
| | Valve pin guide NG20 / NG30 / NG38 | M14x1 | HEX 16 | 30 | 22 |



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|--|-------|--------|-----|-----|
| Valve pin guide NG05 / NG06 / NG08 / VPG - M22 | M22x1 | HEX 27 | 100 | 74 |
| Valve pin guide nut 47-85-101 | M27x1 | HEX 27 | 170 | 125 |
| Screw connections cylinder housing PNC7518M | M6 | HEX 5 | 9 | 7 |

Torques – Dynamic Feed® Components

| Parts | Thread size | Wrench size | Nm | ft-lbs |
|--|--------------|-------------|-----|--------|
| Transducer block DFTB12 Socket head cap screw ISO 4762 - 12.9 (DIN912) | M10 | HEX 8 | 50 | 37 |
| Transducer block DFTB16 Socket head cap screw ISO 4762 - 12.9 (DIN912) | M16 | HEX 14 | 180 | 133 |
| Transducer block DFTB22 Socket head cap screw ISO 4762 - 12.9 (DIN912) | M16 | HEX 14 | 180 | 133 |
| Melt pressure sensor DFMP5 | 1/2"- 20 UNF | HEX 13 | 45 | 33 |

Torques for Screws and Nuts

| Parts | Thread size | Wrench size | Nm | ft-lbs |
|--|-------------|-------------|-----|--------|
| Socket head cap screw ISO 4762 - 12.9 (DIN912) | M4 | HEX 3 | 4 | 3 |
| Socket head cap screw ISO 4762 - 12.9 (DIN912) | M5 | HEX 4 | 8 | 6 |
| Socket head cap screw ISO 4762 - 12.9 (DIN912) | M6 | HEX 5 | 14 | 10 |
| Socket head cap screw ISO 4762 - 12.9 (DIN912) | M8 | HEX 6 | 34 | 25 |
| Socket head cap screw ISO 4762 - 12.9 (DIN912) | M10 | HEX 8 | 67 | 50 |
| Socket head cap screw ISO 4762 - 12.9 (DIN912) | M12 | HEX 10 | 115 | 85 |
| Socket head cap screw ISO 4762 - 12.9 (DIN912) | M14 | HEX 12 | 185 | 136 |
| Socket head cap screw ISO 4762 - 12.9 (DIN912) | M16 | HEX 14 | 290 | 214 |
| Threaded pin DIN913-45H/ISO4026 | M8 | HEX 4 | 10 | 7 |

NOTICE

Torque values for screws and nuts < M4 are not specified in the torque list.

Torques - Manifold Plug Set Screw

for APT Manifolds

| Parts | Thread size | Wrench size | Nm | ft-lbs |
|--|-------------|-------------|------|--------|
| 62-PD-002 Removable manifold plug | M12 | | 40 | 30 |
| | M14 | | 60 | 45 |
| | M16 | | 100 | 75 |
| | M20 | | 130 | 130 |
| | M22 | | 230 | 170 |
| | M24 | | 245 | 180 |
| | M27 | | 270 | 200 |
| | M33 | | 475 | 350 |
| 62-PD-006 Removable manifold plug | M16 | | 100 | 75 |
| | M20 | | 175 | 130 |
| | M24 | | 300 | 220 |
| | M27 | | 375 | 275 |
| | M33 | | 475 | 350 |
| 62-PD-007 Removable manifold plug | M16 | | 100 | 75 |
| | M20 | | 175 | 130 |
| | M24 | | 300 | 220 |
| | M27 | | 375 | 275 |
| | M33 | | 475 | 350 |
| Indicates torque specification provided for special oversized endwork that does not appear in 62-PD-002, 62-PD-006 or 62-PD-007. | M45 | | 680* | 500* |
| | M48 | | 850* | 625* |

for API Manifolds

| Parts | Thread size | Wrench size | Nm | ft-lbs |
|--|-------------|-------------|----|--------|
| MP02 Removable manifold plug (Thread bold MPT141502) | M14x1 | HEX 6 | 15 | 11 |
| MP02 Removable manifold plug (Thread bold MPT161502) | M16x1 | HEX 8 | 25 | 18.5 |
| MP02 Removable manifold plug (Thread bold MPT181502) | M18x1 | HEX 10 | 45 | 33 |
| MP02 Removable manifold plug (Thread bold MPT201502) | M20x1 | HEX 10 | 65 | 48 |

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|------|---|-------|--------|-----|-----|
| MP02 | Removable manifold plug (Thread bold MPT222002) | M22x1 | HEX 12 | 90 | 67 |
| MP02 | Removable manifold plug (Thread bold MPT242002) | M24x1 | HEX 12 | 125 | 92 |
| MP02 | Removable manifold plug (Thread bold MPT262002) | M26x1 | HEX 14 | 165 | 122 |
| MP02 | Removable manifold plug (Thread bold MPT282002) | M28x1 | HEX 14 | 215 | 160 |
| MP02 | Removable manifold plug (Thread bold MPT302002) | M30x1 | HEX 17 | 275 | 203 |
| MP02 | Removable manifold plug (Thread bold MPT332002) | M33x1 | HEX 17 | 380 | 280 |

Torques - No Current Series

| Parts | | Thread size | Wrench size | Nm | ft-lbs |
|------------------------|---------------------|-------------|-------------|-----|--------|
| C | Outside body | M27x1,5 | HEX 22 | 80 | 59 |
| C | (CW00) Outside body | M27x1,5 | HEX 22 | 50 | 37 |
| EA | Nozzle body | M27x1 | HEX 24 | 120 | 89 |
| T-5, HT-5, T-10, HT-10 | Nozzle body | | | 135 | 100 |
| T-5, HT 5 | Nozzle tip | | | 65 | 50 |
| T-10, HT-10 | Nozzle tip | | | 120 | 90 |
| SRP-20, TP-20 | Nozzle tip | | | 200 | 150 |
| SRP-24, TP-24 | Nozzle tip | | | 270 | 200 |
| EG-10 | Nozzle tip | | | 65 | 50 |
| HTP-10 | Nozzle tip | | | 120 | 90 |