

Gebr. Heller Maschinenfabrik GmbH

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HELLER**Customer****Paccar, Columbus USA**

workpiece

Cylinder Head

Project description

P-009081

Part characteristic

Inventory number

HELLER project**MP.05480200_F**

Machine serial number

54802.00

Machine type

H 10000 MC DL

Control

Mounting position

Job No.

Total list

Manufacturer

Gebr. Heller Maschinenfabrik GmbH

Gebrüder-Heller-Straße 15

72622 Nürtingen

Project Manager

Created on

14.03.2016

Abbreviation

Phone

e-mail

Modification date

04.04.2017

Abbreviation

AHFE/ZAJ

CAD system

ePLAN 2.2.5

Number of pages

62

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Structure identifier overview

Strukturkennzeichen_Dyn

| designation | Structure description |
|-------------|-------------------------------------|
| +APC | pallet changer |
| +ATC | tool changer |
| +CC | chip conveyor |
| +CC1 | chip conveyor 1 |
| +CC2 | chip conveyor 2 |
| +CC3 | chip conveyor 3 |
| +CC4 | chip conveyor 4 |
| +CC5 | chip conveyor 5 |
| +CCT | transverse conveyor |
| +CF | workpiece clamping fixture |
| +CLU | cooling lubricant unit |
| +EC | electrical cabinet |
| +EC1 | mounting panel electrical cabinet |
| +EME | emulsion mist extraction |
| +GI | general information |
| +GLS | guarding - loading station |
| +GMA | guarding - machining area |
| +GMS | guarding - magazin/maintenance side |
| +GOS | guarding - operating side |
| +H1 | HELP1 |
| +H2 | HELP2 |
| +H15 | HELP1/5 |
| +M | machine |
| +MC | column |
| +MQL | minimal quantity lubrication |
| +MT | table |
| +MTR | machine table rotary axis |
| +MTS | machine table swivel axis |

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Structure identifier overview

Strukturkennzeichen_Dyn

| designation | Structure description |
|-------------|--|
| +MU | unit |
| +MUT | machine table swivel axis |
| +OU1 | operating unit - machining area |
| +OU2 | operating unit - workpiece loading station |
| +OU3 | operating unit - tool loading station |
| +OU11 | hand-held operating unit |
| +OU33 | Rack-type tool magazine hand-held operating unit |
| +PM | pallet magazine |
| +PMD | pallet magazine door |
| +PMI | pallet magazine interface |
| +TM | tool magazine |
| +TMDR | tool magazine door racktype |
| +TMIR | tool magazine interface racktype |
| +TMLR | tool magazine loader racktype |
| +TMR | tool magazine racktype |
| +TMSR | tool magazine station racktype |
| +WFL | robot |
| +WLS | workpiece loading station |
| +WTL | workpiece toloading |

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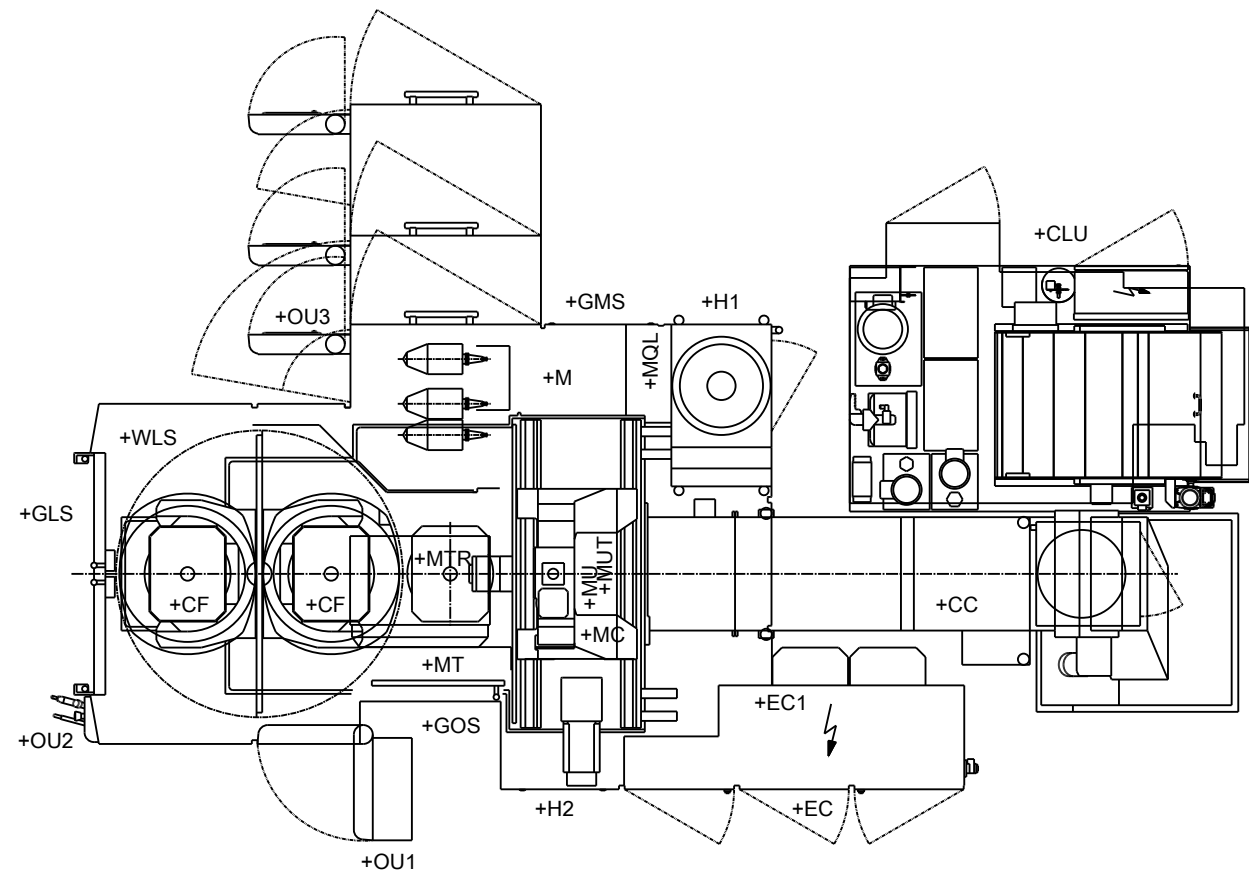
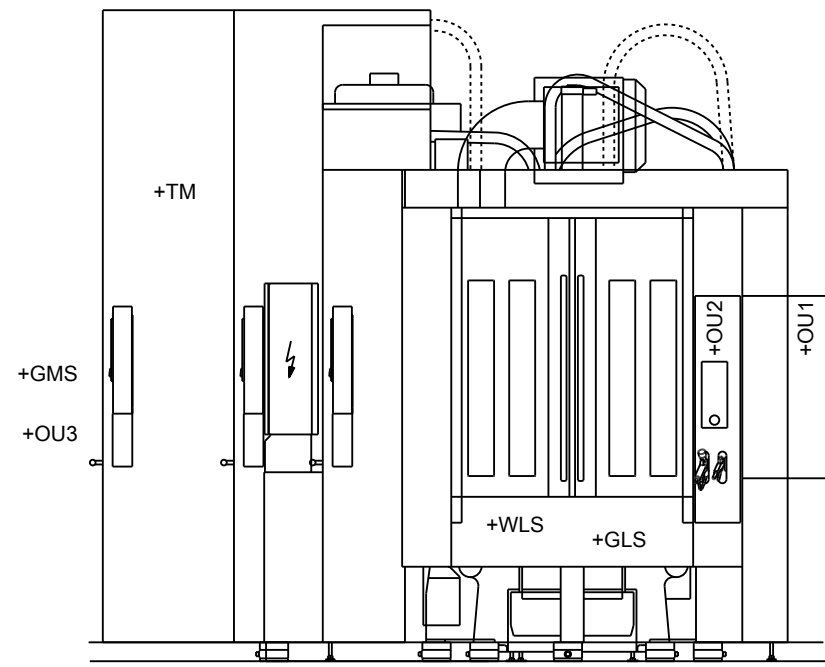
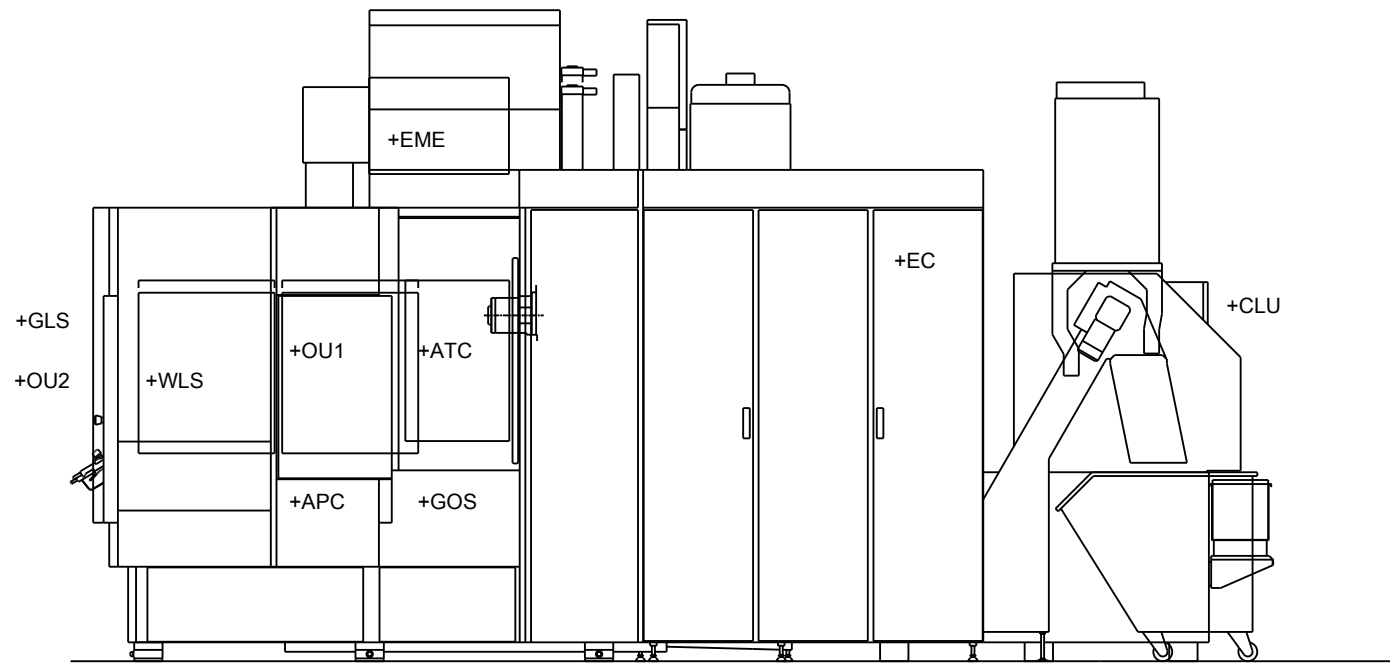
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- +ATC tool changer
- +APC pallet changer
- +CC chip conveyor
- +CF workpiece clamping fixture
- +CLU cooling lubricant unit
- +EC electrical cabinet
- +EC1 mounting panel electrical cabinet
- +EME emulsion mist extraction
- +GLS guarding - loading station
- +GMS guarding - magazin/maintenance side
- +GOS guarding - operating side
- +H1 HELP1
- +H2 HELP2
- +MC column
- +M machine
- +MQL minimal quantity lubrication
- +MT table
- +MTR machine table rotary axis
- +MU unit
- +MUT machine table swivel axis
- +MU unit
- +OU1 operating unit - machining area
- +OU3 operating unit - tool loading station
- +TM tool magazine
- +WLS workpiece loading station

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| | | | | PROJ./PROJ. PROJ. 54802.00 M-NR./M-NO/ M-NO TYP./TYPE/ TIPO WERKSTÜCK/ PART/PEÇA | <h1 style="margin: 0;">HELLER</h1> <p style="margin: 0;">Machine overview</p> | KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA INV-NR./INV-NO/NO-INV | PLAN/PLAN/PLANO project Machine Document type Mounting position Page name 4 | MP.05480200_F |
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parameter list

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| <p>+H1-363I640/4 FS 0.3 Uni = cm SP1 = 34 cm SP2 = 30 cm OU1 = Hnc OU2 = Hno rP1 = 33,5 cm rP2 = 29,5 cm OFS = 20</p> | <p>+H1-363I657 PS 0.16 Uni = bar SP1 = 180 bar OU1 = Hno rP1 = 175 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-364I664PS 215.22 Uni = bar SP1 = 18 bar OU1 = Hno rP1 = 16 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-386I2171PS 290.3 Uni = bar SP1 = 18 bar OU1 = Hno rP1 = 16 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1552 PS 62.7 Uni = bar "SP1=H3"-10 bar OU1 = Hno "rP1=H3"-13 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1555 PS 65.7 Uni = bar "SP1=H6"-10 bar OU1 = Hno "rP1=H6"-13 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-458I1570 PS 160.5 Uni = bar SP1 = 1,8 bar OU1 = Hno rP1 = 1,6 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-458I1573 PS 160.14 Uni = bar SP1 = 1,8 bar OU1 = Hno rP1 = 1,6 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> |
| <p>+H1-363I643/7 RES 0.25 Uni = °C SP1 = 50 °C SP2 = 65 °C OU1 = Hno OU2 = Hnc rP1 = ? °C rP2 = ? °C dS1 = 0,0 dS2 = 0,0 dr1 = 0,0 dr2 = 0,0 P-n = PnP dis = d2 FOU1 = OFF FOU2 = OFF Mmod = 4W COF = 0,0</p> | <p>+MU-364I661 PS 10.6 Uni = bar SP1 = 45 bar OU1 = Hno rP1 = 30 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+MU-364I665 PS 215.10 Uni = bar SP1 = 1,5 bar OU1 = Hno rP1 = 1,3 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1550 PS 60.7 Uni = bar "SP1=H1"-10 bar OU1 = Hno "rP1=H1"-13 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1553 PS 63.7 Uni = bar "SP1=H4"-10 bar OU1 = Hno "rP1=H4"-13 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1556 PS 66.7 Uni = bar "SP1=H4"-10 bar OU1 = Hno "rP1=H4"-13 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-458I1571 PS 160.8 Uni = bar SP1 = 1,8 bar OU1 = Hno rP1 = 1,6 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-8516FLS 100.37 Uni = ScFm SP1 = - L/min SP2 = - L/min OU1 = ImP OU2 = I rP1 = ? L/min rP2 = ? L/min ImPS = 0,1 ImPR = YES ASP = 0,0 AEP = 12,5 dAP = 0,6 dis = d3 FOU1 = OFF FOU2 = OFF rTo = OFF SELd = FLOW</p> |
| <p>+H1-363I653 PS 0.12 Uni = bar SP1 = 50 bar OU1 = Hno rP1 = 48 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-364I662 PS 100.32 Uni = bar SP1 = 2 bar OU1 = Hno rP1 = 1,8 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+MT-381I842 FLS 241.2 uni = L/min (gal/min) SP1 / FH1 = 2,5 % rP1 / FL1 = 1,25 % ou1 = Hno ou2 = I SEL1 = FLOW SEL2 = FLOW SELd = FLOW FEP1 = 100 % dAP = 0,1 diS = d2 FOU1 = ou FOU2 = ou P-n = PnP dAA = 0 MEEd = OIL.2 coLr = rEd</p> | <p>+H15-452I1551 PS 61.7 Uni = bar "SP1=H2"-10 bar OU1 = Hno "rP1=H2"-13 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1554 PS 64.7 Uni = bar "SP1=H5"-10 bar OU1 = Hno "rP1=H5"-13 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1557 PS 67.7 Uni = bar "SP1=H5"-10 bar OU1 = Hno "rP1=H5"-13 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-458I1572 PS 160.11 Uni = bar SP1 = 1,8 bar OU1 = Hno rP1 = 1,6 bar dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | |

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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ./PROJ. | <p style="text-align: center;">HELLER</p> KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA | | PLAN/PLAN/PLANO | |
| CAD-System | | | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | | | BENENNUNG/NAME/DENOMINAÇÃO parameter list | |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | M54802 | INV-NR/INV-NO/NO-INV | | MP.05480200_F =M54802 1 | |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 04.04.2017 | AHFE/ZAJ | | | | 8 / 62 | |

parameter list

Änderungen nur im CAD-Original!
 Changes in CAD only!
 Mudanças no original CAD somente!

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 Schutzvermerk nach DIN 34 beachten!
 Attention! Observe DIN 34
 Atenção! Leia a DIN 34

| | | | | | | | |
|--|--|--|--|--|--|---|---|
| <p>+H1-363I640/4 FS 0.3 Uni = cm SP1 = 34 cm SP2 = 30 cm OU1 = Hnc OU2 = Hno rP1 = 33,5 cm rP2 = 29,5 cm OFS = 20</p> | <p>+H1-363I657 PS 0.16 Uni = psi SP1 = 2611 psi OU1 = Hno rP1 = 2538 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-364I664PS 215.22 Uni = psi SP1 = 261 psi OU1 = Hno rP1 = 232 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-386I2171PS 290.3 Uni = psi SP1 = 261 psi OU1 = Hno rP1 = 232 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1552 PS 62.7 Uni = psi "SP1=H3"-145 psi OU1 = Hno "rP1=H3"-189 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1555 PS 65.7 Uni = psi "SP1=H6"-145 psi OU1 = Hno "rP1=H6"-189 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-458I1570 PS 160.5 Uni = psi SP1 = 26 psi OU1 = Hno rP1 = 23 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-458I1573 PS 160.14 Uni = psi SP1 = 26 psi OU1 = Hno rP1 = 23 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> |
| <p>+H1-363I643/7 RES 0.25 Uni = °C SP1 = 50 °C SP2 = 65 °C OU1 = Hno OU2 = Hnc rP1 = ? °C rP2 = ? °C dS1 = 0,0 dS2 = 0,0 dr1 = 0,0 dr2 = 0,0 P-n = PnP dis = d2 FOU1 = OFF FOU2 = OFF Mmod = 4W COF = 0,0</p> | <p>+MU-364I661 PS 10.6 Uni = psi SP1 = 653 psi OU1 = Hno rP1 = 435 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+MU-364I665 PS 215.10 Uni = psi SP1 = 22 psi OU1 = Hno rP1 = 19 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1550 PS 60.7 Uni = psi "SP1=H1"-145 psi OU1 = Hno "rP1=H1"-189 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1553 PS 63.7 Uni = psi "SP1=H4"-145 psi OU1 = Hno "rP1=H4"-189 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1556 PS 66.7 Uni = psi "SP1=H4"-145 psi OU1 = Hno "rP1=H4"-189 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-458I1571 PS 160.8 Uni = psi SP1 = 26 psi OU1 = Hno rP1 = 23 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-8516FLS 100.37 Uni = ScFm SP1 = - L/min SP2 = - L/min OU1 = ImP OU2 = I rP1 = ? L/min rP2 = ? L/min ImPS = 0,1 ImPR = YES ASP = 0,0 AEP = 12,5 dAP = 0,6 dis = d3 FOU1 = OFF FOU2 = OFF rTo = OFF SELd = FLOW</p> |
| <p>+H1-363I653 PS 0.12 Uni = psi SP1 = 725 psi OU1 = Hno rP1 = 696 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-364I662 PS 100.32 Uni = psi SP1 = 29 psi OU1 = Hno rP1 = 26 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+MT-381I842 FLS 241.2 uni = L/min (gal/min) SP1 / FH1 = 2,5 % rP1 / FL1 = 1,25 % ou1 = Hno ou2 = I SEL1 = FLOW SEL2 = FLOW SELd = FLOW FEP1 = 100 % dAP = 0,1 diS = d2 FOU1 = ou FOU2 = ou P-n = PnP dAA = 0 MEdI = OIL.2 coLr = rEd</p> | <p>+H15-452I1551 PS 61.7 Uni = psi "SP1=H2"-145 psi OU1 = Hno "rP1=H2"-189 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1554 PS 64.7 Uni = psi "SP1=H5"-145 psi OU1 = Hno "rP1=H5"-189 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H15-452I1557 PS 67.7 Uni = psi "SP1=H5"-145 psi OU1 = Hno "rP1=H5"-189 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | <p>+H1-458I1572 PS 160.11 Uni = psi SP1 = 26 psi OU1 = Hno rP1 = 23 psi dS1 = 0,0 dr1 = 0,0 dAP = 60 dis = d2</p> | |

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| <p>ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO</p> | | | | <p>Index</p> | <p>ZONE/ZONA</p> | <p>DATUM/DATE</p> | <p>NAME/NOME</p> | <p>PROJ./PROJ./PROJ. 54802.00</p> | <p>HELLER</p> | <p>KUNDE/CUSTOMER/CLIENTE</p> | <p>PLAN/PLAN/PLANO</p> |
| <p>CAD-System</p> | | | | <p>URSPPR./ORIG.</p> | <p>GEPR./CHECK./REG.</p> | <p>BEARB./CHG./ALT.</p> | <p>AHFE/ZAJ</p> | <p>M-NR./M-NO/ M-NO M54802</p> | | <p>Paccar, Columbus USA</p> | <p>project MP.05480200_F</p> |
| <p>ePLAN 2.2.5</p> | | | | <p>ERS./REP.</p> | <p>GEZ./DRAWN/DES.</p> | <p>04.04.2017</p> | <p>AHFE/ZAJ</p> | <p>TYP./TYPE/ TIPO</p> | <p>parameter list</p> | <p>INV-NR./INV-NO/NO-INV</p> | <p>Machine =M54802</p> |
| | | | | <p>ERS.D./REP.W.</p> | | <p>04.04.2017</p> | <p>AHFE/ZAJ</p> | <p>WERKSTÜCK/ PART/PEÇA</p> | | | <p>Document type</p> |
| | | | | | | | | | | | <p>Mounting position</p> |
| | | | | | | | | | | | <p>Page name 2</p> |
| | | | | | | | | | | | <p>A3</p> |

Device tag list

Heller_Dynam_Bed_2L2C

| device tag | number | denomination | Type | Manufacturer | Heller no. | device tag | number | denomination | Type | Manufacturer | Heller no. |
|-------------|--------|--------------------------|--|------------------------|------------|------------|--------|---------------------------|--|------------------------|------------|
| +H1-0.2 | 1 | oil level indicator | FSA-127-1.XI-/12 700036 | Hydac | 01.031751 | +H1-0.24-1 | 1 | pressure gauge | EN837-23-B-063-G1/4B- 0/250bar-1,6-Glyz schwarz | | 01.009677 |
| +H1-0.3 | 1 | level sensor | LK7022 | IFM Electronic | 01.089136 | +H1-0.24-2 | 1 | high-pressure hose | S100-AC-AC-0063 DN2 630 mm 250bar | Hydrotechnik | 01.006183 |
| +H1-0.3-0.1 | 1 | hydraulic power unit | | Heller Maschinenfabrik | | +H1-0.25 | 1 | Evaluation unit | TR7439 | IFM Electronic | 01.112877 |
| +H1-0.4 | 1 | filler filter | ELF P 3 F 10 W1.X R900011023 | Bosch Rexroth | 01.100511 | +H1-0.26 | 1 | plate | min./max. | Heller Maschinenfabrik | 10.500538 |
| +H1-0.5 | 1 | Three-phase motor | 1LE1023-1CB03-4FA4-Z 1LE1023-1CB03-4FA4-Z L02+M10 | Siemens | 21.022591E | +H1-0.27 | 1 | plate | filter element | Heller Maschinenfabrik | 10.500947 |
| +H1-0.6 | 1 | pump carrier | PK 300/05/21-20 103026052120 | KTR | 01.111926 | +H1-0.29 | 1 | pressure relief valve | DBDS6G1X/315 G1/4 R900423720 | Bosch Rexroth | 01.103214 |
| | 1 | flange | AB33-33/PTFL 300 R900025969 | Bosch Rexroth | 01.106677 | +H1-0.30 | 1 | pressure relief valve | DBDS10G1X/200 G1/2 R900424140 | Bosch Rexroth | 01.087661 |
| +H1-0.7 | 1 | coupling | ROTEX 28 ST, 92-Sh A T-Pur D1=22, D2=38 | KTR | 01.097519 | +H1-0.31 | 1 | coupling | NS-1002-16FB | Parker | 01.112291 |
| +H1-0.8 | 1 | pumps combination | A10VSO28DR1/31R-VPA12KB2-SO275 +A10VSO10DR/52R-VSA14N00 | Bosch Rexroth | 01.099999 | | 1 | protective cap | NR-100 | Parker | 01.112292 |
| +H1-0.8-1 | 1 | axial piston pump | A10VSO28DR1/31R-VPA12KB2-SO275 R902466631 | Bosch Rexroth | | +H1-0.32 | 1 | check valve | RHD22LOMD-CF | Parker | 01.002262 |
| +H1-0.8-2 | 1 | axial piston pump | A10VSO10DR/52R-VSA14N00 R902428494 | Bosch Rexroth | | +H1-0.35 | 1 | vent valve | 3.3518-05 002 | Teves | 01.002650 |
| +H1-0.9 | 1 | measuring connection | GMA3/18LOMDCF | Parker | 01.084636 | | 1 | nipple | D8 | Heller Maschinenfabrik | 00.783370 |
| +H1-0.10 | 1 | hose line | DIN 20066-2SC16-NN- 650-P 462-10- 650 | Parker | 01.109210 | +MU-0.50 | 1 | hose line | DIN 20066-2SC10-NN-2800-P 462- 6-2800 | Parker | 01.099730 |
| +H1-0.11 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | | +MU-0.51 | 1 | hose line | DIN 20066-2SC10-NN-2800-P 462- 6-2800 | Parker | 01.099730 |
| +H1-0.12 | 1 | pressure switch | PN7092 0-100bar, G1/4 | IFM Electronic | 01.111726 | +MU-10.1 | 1 | manifold | A064 R3/8 SB2 | Parker | 01.078214 |
| +H1-0.13 | 1 | measuring connection | GMA3/12LOMDCF | Parker | 01.084635 | +MU-10.2 | 1 | directional control valve | 4WE 6 D 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098700 |
| +H1-0.14 | 1 | hose line | DIN 20066-2SC10-NN- 900-P 462- 6- 900 | Parker | 01.099725 | +MU-10.5 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | |
| +H1-0.15 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | | +MU-10.6 | 1 | pressure switch | PN7092 0-100bar, G1/4 | IFM Electronic | 01.111726 |
| +H1-0.16 | 1 | pressure switch | PN7071 0-250bar, G1/4 | IFM Electronic | 01.111727 | +MU-10.10 | 1 | hose line | 381-4 SAE 100R2 DIN20022 2SN | Parker | |
| +H1-0.17 | 1 | return line filter | 10TEN0100-H10XLA00-P2,2-M-R4 R928041275 | Bosch Rexroth | 01.106168 | +MU-10.11 | 1 | hose line | 381-4 SAE 100R2 DIN20022 2SN | Parker | |
| +H1-0.17-1 | 1 | filter element | 1.0100 H10XL-A00-0-M R928005873 | Bosch Rexroth | 01.106169 | +MU-10.20 | 1 | tool spindle | EPC100 | Heller Maschinenfabrik | |
| +H1-0.17-2 | 1 | clogging indicator | WE-2SP-M12x1 R928028410 | Bosch Rexroth | 01.106289 | +H1-32.2 | 1 | intermediate plate | HSZ 06 A085-3X/M00 R900514667 | Bosch Rexroth | 01.092767 |
| +H1-0.18 | 1 | oil/water heat exchanger | AB32-12/00-K-006-22 R900028816 | Bosch Rexroth | 01.102735 | +H1-32.2-1 | 1 | nozzle | D=2,5 - M8x1 DIN 906 00137445 | Bosch Rexroth | 01.093578 |
| +H1-0.19 | 1 | hose line | DIN 20066-2SC10-NN- 650-P 462- 6- 650 | Parker | 01.108379 | +H1-32.2-2 | 1 | nozzle | D=1,8 - M8x1 DIN 906 00150953 | Bosch Rexroth | 01.092770 |
| +H1-0.21 | 1 | control valve | AB21-22/10-15 R900002427 | Bosch Rexroth | 01.101087 | +H1-32.3 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/75 YM NG6, 75bar R900483786 | Bosch Rexroth | 01.081132 |
| +H1-0.22 | 1 | ball valve | DN15, PN32, G1/2 MLG V 032.715 | Böhmer | 01.077305 | | 1 | measuring connection | EMA3/1/4EDCF G1/4A - M16 | Parker | 01.084632 |
| +H1-0.23 | 1 | ball valve | DN15, PN32, G1/2 MLG V 032.715 | Böhmer | 01.077305 | +H1-32.4 | 1 | directional control valve | 4WE 6 Q 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098703 |
| +H1-0.24 | 1 | measuring device | 0-250bar | Hydrotechnik | 13.021566 | +TM-32.11 | 1 | hose line | DIN 20066-2SC10-NN-1320-P 462- 6-1320 | Parker | 01.100211 |

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|---|--|--|--|--|-----------------------------------|---|---|--|---|-----------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO CAD-System ePLAN 2.2.5 | | URSPR./ORIG. ERS./REP. ERS.D./REP.W. | GEPR./CHECK./REG. BEARB./CHG./ALT. GEZ./DRAWN/DES. | DATUM/DATE 04.04.2017 04.04.2017 | NAME/NOME AHFE/ZAJ AHFE/ZAJ | PROJ./PROJ./PROJ. 54802.00 M-NR/M-NO/ M-NO M54802 TYP/TYPE/ TIPO H 10000 MC WERKSTÜCK/ PART/PEÇA | <div style="text-align: center; font-weight: bold; font-size: 1.2em;">HELLER</div> BENENNUNG/NAME/DENOMINAÇÃO Device tag list hydraulics | KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA INV-NR/INV-NO/NO-INV | PLAN/PLAN/PLANO project Machine Document type Mounting position Page name MP.05480200_F =M54802 &H hydraulic diagram 0 | &2 0.a A3 |
|---|--|--|--|--|-----------------------------------|---|---|--|---|-----------------|

Device tag list

Heller_Dynam_Bed_2L2C

| device tag | number | denomination | Type | Manufacturer | Heller no. | device tag | number | denomination | Type | Manufacturer | Heller no. |
|------------|--------|----------------------------|--|------------------------|------------|------------|--------|----------------------------|--|----------------|------------|
| +TM-32.12 | 1 | hose line | DIN 20066-2SC10-NN-1050-P 462- 6-1050 | Parker | 01.100215 | +H15-60.6 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | |
| +TM-32.13 | 1 | hydraulic cylinder | CDT3MX3/25/12/350Z20B14HXETWW R901374280 | Bosch Rexroth | 01.108914 | +H15-60.7 | 1 | pressure switch | PN7071 0-250bar, G1/4 | IFM Electronic | 01.111727 |
| +H1-33.2 | 1 | check valve | Z1S 6 P05-4X/V R901086051 | Bosch Rexroth | 01.081137 | +MT-60.11 | 1 | hose line | DIN 20066-2SC10-NN-3940-P 462- 6-3940 | Parker | 01.100252 |
| +H1-33.3 | 1 | intermediate plate | HSZ 06 A085-3X/M00 R900514667 | Bosch Rexroth | 01.092767 | +H15-61.2 | 1 | throttle check valve | Z2FS 6 2-4X/1QV R900481623 | Bosch Rexroth | 01.093456 |
| +H1-33.3-1 | 1 | nozzle | D=2,5 - M8x1 DIN 906 00137445 | Bosch Rexroth | 01.093578 | +H15-61.3 | 1 | pilot operated check valve | Z2S 6 B1-6X/- R900347501 | Bosch Rexroth | 01.034271 |
| +H1-33.3-2 | 1 | nozzle | D=1,8 - M8x1 DIN 906 00150953 | Bosch Rexroth | 01.092770 | +H15-61.4 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/210 YM NG6, 210bar | Bosch Rexroth | 01.086716 |
| +H1-33.4 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/75 YM NG6, 75bar R900483786 | Bosch Rexroth | 01.081132 | +H15-61.5 | 1 | directional control valve | 4WE 6 J 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098704 |
| | 1 | measuring connection | EMA3/1/4EDCF G1/4A - M16 | Parker | 01.084632 | +H15-61.6 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | |
| +H1-33.5 | 1 | directional control valve | 4WE 6 J 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098704 | +H15-61.7 | 1 | pressure switch | PN7071 0-250bar, G1/4 | IFM Electronic | 01.111727 |
| +TM-33.11 | 1 | hose line | DIN 20066-2SC10-NN-1500-P 462- 6-1500 | Parker | 01.100681 | +MT-61.11 | 1 | hose line | DIN 20066-2SC10-NN-3940-P 462- 6-3940 | Parker | 01.100252 |
| +TM-33.12 | 1 | hose line | DIN 20066-2SC10-NN-1200-P 462- 6-1200 | Parker | 01.099727 | +H15-62.2 | 1 | throttle check valve | Z2FS 6 2-4X/1QV R900481623 | Bosch Rexroth | 01.093456 |
| +TM-33.13 | 1 | hydraulic cylinder | CHNB-25-289-DCM 2430 M D=25/12 H289 | SMC | 01.106047 | +H15-62.3 | 1 | pilot operated check valve | Z2S 6 B1-6X/- R900347501 | Bosch Rexroth | 01.034271 |
| +MT-41.1 | 1 | rotary feed table | | Heller Maschinenfabrik | | +H15-62.4 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/210 YM NG6, 210bar | Bosch Rexroth | 01.086716 |
| +MT-41.1-1 | 1 | vent valve | 3.3518-05 002 | Teves | 01.002650 | +H15-62.5 | 1 | directional control valve | 4WE 6 J 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098704 |
| +H1-41.2 | 1 | intermediate plate | HSZ 06 A028-3X/M01 R900515514 | Bosch Rexroth | 01.096731 | +H15-62.6 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | |
| +H1-41.4 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/75 YM NG6, 75bar R900483786 | Bosch Rexroth | 01.081132 | +H15-62.7 | 1 | pressure switch | PN7071 0-250bar, G1/4 | IFM Electronic | 01.111727 |
| +H1-41.5 | 1 | directional control valve | 4WE 6 D 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098700 | +MT-62.11 | 1 | hose line | DIN 20066-2SC10-NN-3940-P 462- 6-3940 | Parker | 01.100252 |
| +H1-41.6 | 1 | measuring connection | EMA3/3/8EDCF | Parker | 01.084633 | +H15-63.2 | 1 | throttle check valve | Z2FS 6 2-4X/1QV R900481623 | Bosch Rexroth | 01.093456 |
| +MT-41.11 | 1 | hose line | DIN 20066-2SC10-NN-3940-P 462- 6-3940 | Parker | 01.100252 | +H15-63.3 | 1 | pilot operated check valve | Z2S 6 B1-6X/- R900347501 | Bosch Rexroth | 01.034271 |
| +H1-45.1 | 1 | manifold | SA 066 DS1 10.500275 | Heller Maschinenfabrik | 13.500403 | +H15-63.4 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/210 YM NG6, 210bar | Bosch Rexroth | 01.086716 |
| +H1-45.2 | 1 | cover plate | 110 115-11 | Gutekunst | 01.105658 | +H15-63.5 | 1 | directional control valve | 4WE 6 J 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098704 |
| +H1-45.3 | 1 | cover plate | 110 115-11 | Gutekunst | 01.105658 | +H15-63.6 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | |
| +H1-45.4 | 1 | cover plate | 110 115-11 | Gutekunst | 01.105658 | +H15-63.7 | 1 | pressure switch | PN7071 0-250bar, G1/4 | IFM Electronic | 01.111727 |
| +H15-60.1 | 1 | manifold | SA 0610DS1 10.500433 | Heller Maschinenfabrik | 13.500775 | +MT-63.11 | 1 | hose line | DIN 20066-2SC10-NN-3940-P 462- 6-3940 | Parker | 01.100252 |
| +H15-60.2 | 1 | throttle check valve | Z2FS 6 2-4X/1QV R900481623 | Bosch Rexroth | 01.093456 | +H15-64.2 | 1 | throttle check valve | Z2FS 6 2-4X/1QV R900481623 | Bosch Rexroth | 01.093456 |
| +H15-60.3 | 1 | pilot operated check valve | Z2S 6 B1-6X/- R900347501 | Bosch Rexroth | 01.034271 | +H15-64.3 | 1 | pilot operated check valve | Z2S 6 B1-6X/- R900347501 | Bosch Rexroth | 01.034271 |
| +H15-60.4 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/210 YM NG6, 210bar | Bosch Rexroth | 01.086716 | +H15-64.4 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/210 YM NG6, 210bar | Bosch Rexroth | 01.086716 |
| +H15-60.5 | 1 | directional control valve | 4WE 6 J 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098704 | +H15-64.5 | 1 | directional control valve | 4WE 6 J 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098704 |

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|---|--|---------------|-------------------|------------|-----------|-------------------------|------------|----------------------------|------------------------|-----------------|----------------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | Device tag list hydraulics | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 04.04.2017 | AHFE/ZAJ | WERKSTÜCK/ PART/PEÇA | | | | Document type | &H hydraulic diagram |
| | | | | | | | | | Mounting position | | |
| | | | | | | | | | Page name | 0.a | |

0.b

Device tag list

Heller_Dynam_Bed_2L2C

| device tag | number | denomination | Type | Manufacturer | Heller no. |
|------------|--------|----------------------------|--|----------------|------------|
| +H15-64.6 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | |
| +H15-64.7 | 1 | pressure switch | PN7071 0-250bar, G1/4 | IFM Electronic | 01.111727 |
| +MT-64.11 | 1 | hose line | DIN 20066-2SC10-NN-3940-P 462- 6-3940 | Parker | 01.100252 |
| +H15-65.2 | 1 | throttle check valve | Z2FS 6 2-4X/1QV R900481623 | Bosch Rexroth | 01.093456 |
| +H15-65.3 | 1 | pilot operated check valve | Z2S 6 B1-6X/- R900347501 | Bosch Rexroth | 01.034271 |
| +H15-65.4 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/210 YM NG6, 210bar | Bosch Rexroth | 01.086716 |
| +H15-65.5 | 1 | directional control valve | 4WE 6 J 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098704 |
| +H15-65.6 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | |
| +H15-65.7 | 1 | pressure switch | PN7071 0-250bar, G1/4 | IFM Electronic | 01.111727 |
| +MT-65.11 | 1 | hose line | DIN 20066-2SC10-NN-3940-P 462- 6-3940 | Parker | 01.100252 |
| +H15-66.2 | 1 | throttle check valve | Z2FS 6 2-4X/1QV R900481623 | Bosch Rexroth | 01.093456 |
| +H15-66.3 | 1 | pilot operated check valve | Z2S 6 B1-6X/- R900347501 | Bosch Rexroth | 01.034271 |
| +H15-66.4 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/210 YM NG6, 210bar | Bosch Rexroth | 01.086716 |
| +H15-66.5 | 1 | directional control valve | 4WE 6 J 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098704 |
| +H15-66.6 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | |
| +H15-66.7 | 1 | pressure switch | PN7071 0-250bar, G1/4 | IFM Electronic | 01.111727 |
| +MT-66.11 | 1 | hose line | DIN 20066-2SC10-NN-3940-P 462- 6-3940 | Parker | 01.100252 |
| +H15-67.2 | 1 | throttle check valve | Z2FS 6 2-4X/1QV R900481623 | Bosch Rexroth | 01.093456 |
| +H15-67.3 | 1 | pilot operated check valve | Z2S 6 B1-6X/- R900347501 | Bosch Rexroth | 01.034271 |
| +H15-67.4 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/210 YM NG6, 210bar | Bosch Rexroth | 01.086716 |
| +H15-67.5 | 1 | directional control valve | 4WE 6 J 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098704 |
| +H15-67.6 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | |
| +H15-67.7 | 1 | pressure switch | PN7071 0-250bar, G1/4 | IFM Electronic | 01.111727 |
| +MT-67.11 | 1 | hose line | DIN 20066-2SC10-NN-3940-P 462- 6-3940 | Parker | 01.100252 |
| +H15-81.2 | 1 | intermediate plate | HSZ 06 A027-3X/M01 R900515513 | Bosch Rexroth | 01.105657 |
| +H15-81.3 | 1 | throttle check valve | Z2FS 6 2-4X/1QV R900481623 | Bosch Rexroth | 01.093456 |
| +H15-81.4 | 1 | pressure reducing valve | ZDR 6 DP 2-4X/75 YM NG6, 75bar R900483786 | Bosch Rexroth | 01.081132 |
| +H15-81.5 | 1 | directional control valve | 4WE 6 J 6X/-EG24N9K73L/SO407, 8W | Bosch Rexroth | 01.098704 |

| device tag | number | denomination | Type | Manufacturer | Heller no. |
|------------|--------|--------------------------|--|---------------|------------|
| +H15-81.6 | 1 | measuring connection | GMA3/18LOMDCF | Parker | 01.084636 |
| +H15-81.7 | 1 | measuring connection | GMA3/18LOMDCF | Parker | 01.084636 |
| +H15-81.8 | 1 | cover plate | 110 115-11 | Gutekunst | 01.105658 |
| +GOS-81.17 | 1 | hydraulic cylinder | CDT3MS2/32/22/950Z20S11HHEMWWZ22838 | Bosch Rexroth | 01.108896 |
| +GOS-81.18 | 1 | hydraulic cylinder | CDT3MS2/32/22/950Z20S11HHEMWWZ22838 | Bosch Rexroth | 01.108896 |
| +MT-103.11 | 1 | plastic pipe | PUN-10x1,5-BL 159668 | Festo | 01.092359 |
| | 1 | fastening angle | MS6-WP 532195 | Festo | 01.106329 |
| +MT-103.12 | 1 | check valve | T55C2800 G1/4i | Norgren | 01.095313 |
| +MU-107.10 | 1 | plastic pipe | PA 10x1 1 820 712 105 | AVENTICS | 01.093306 |
| +MU-111.10 | 1 | plastic pipe | PA 12x1,5 1 820 712 103 | AVENTICS | 01.093304 |
| +MU-121.10 | 1 | plastic pipe | PA 6x1 1 820 712 101 | AVENTICS | 01.093302 |
| +MT-160.21 | 1 | plastic pipe | PUN-10x1,5-BL 159668 | Festo | 01.092359 |
| +MT-160.22 | 1 | plastic pipe | PUN-10x1,5-BL 159668 | Festo | 01.092359 |
| +MT-160.23 | 1 | plastic pipe | PUN-10x1,5-BL 159668 | Festo | 01.092359 |
| +MT-160.24 | 1 | plastic pipe | PUN-10x1,5-BL 159668 | Festo | 01.092359 |
| +MU-210.20 | 1 | oil/water heat exchanger | TPL00-K-10-12 G1 | Funke | 01.100384 |
| +MU-410.7 | 1 | hose | Oilpress N/L 20 25x36 20bar IH30832006/40 | Parker | 01.100022 |

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| | | | | | | | | | | |
|---|--|--|--|---|-----------------------------------|--|---|--|---|---------|
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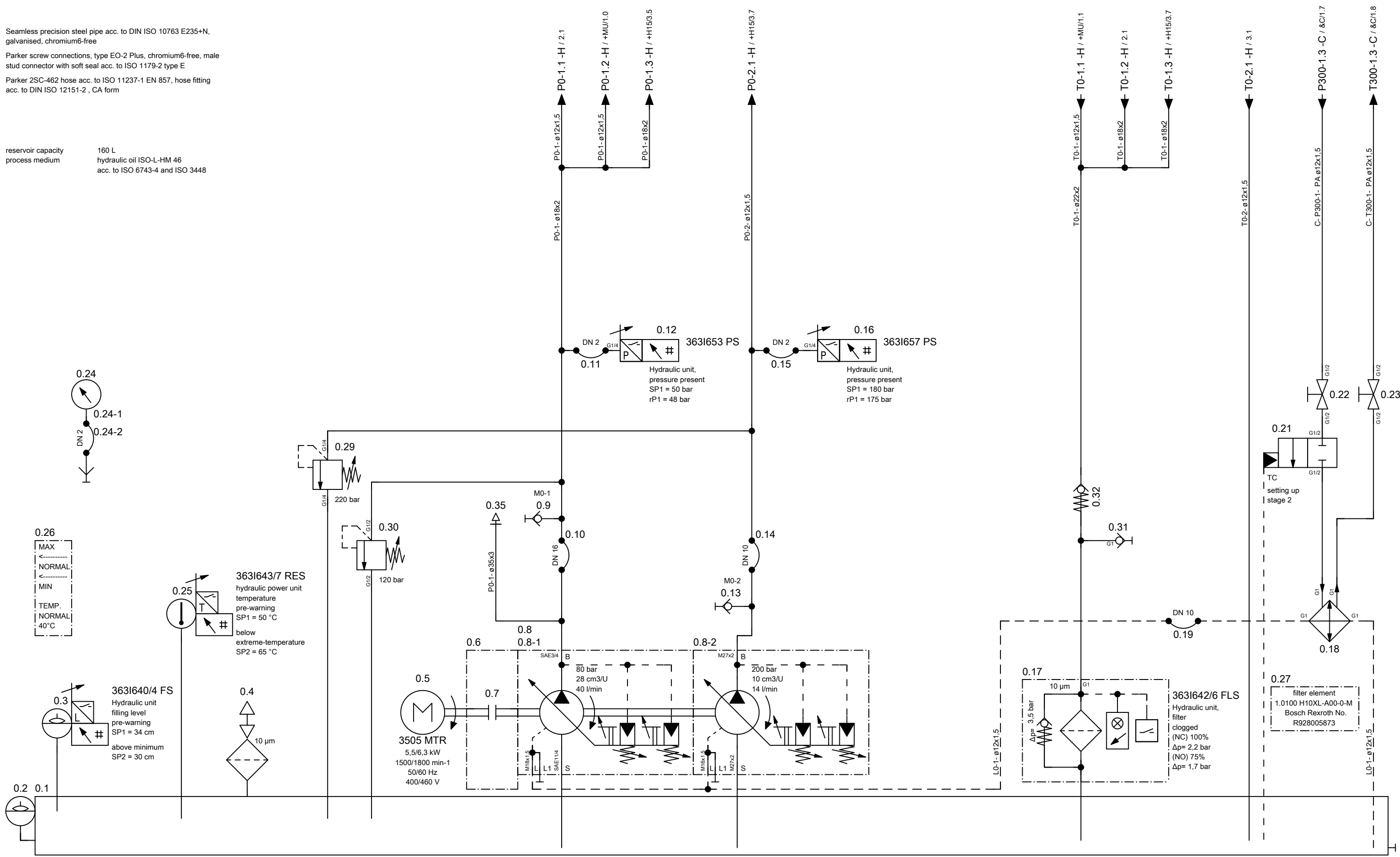
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Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form

reservoir capacity 160 L
process medium hydraulic oil ISO-L-HM 46 acc. to ISO 6743-4 and ISO 3448

0 hydraulic power unit



← +/0.b

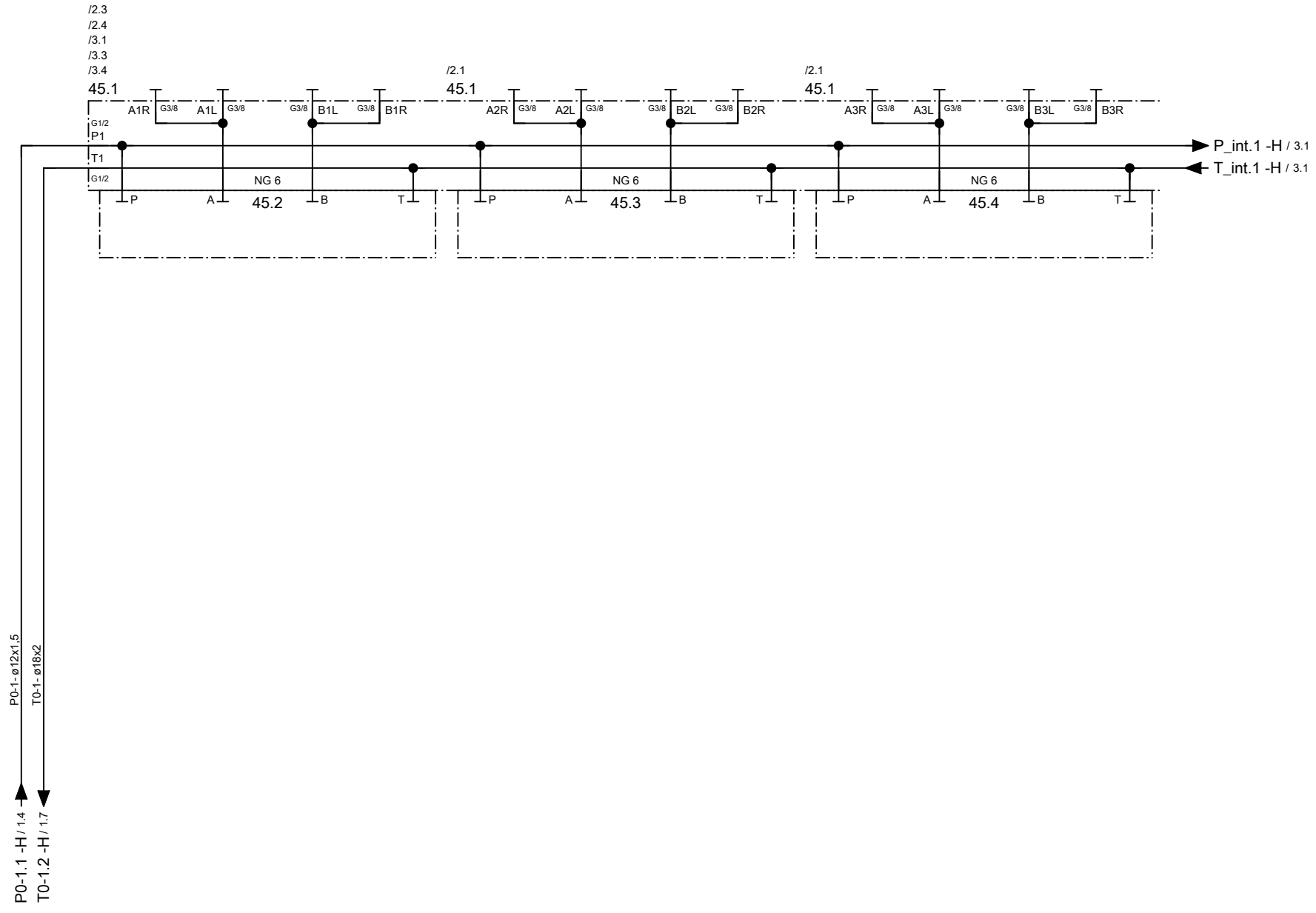
2 →

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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ./PROJ. | 45802.00 | <h1 style="text-align: center;">HELLER</h1> <p style="text-align: center;">hydraulic diagram</p> | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
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| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | 13.503932, 13.503916, 13.503921, 13.503925 | Document type | &H hydraulic diagram | |
| | | | | | | | | | | | Mounting position | +H1 HELP1 | |
| | | | | | | | | | | | Page name | 1 | |

Heller_ZL

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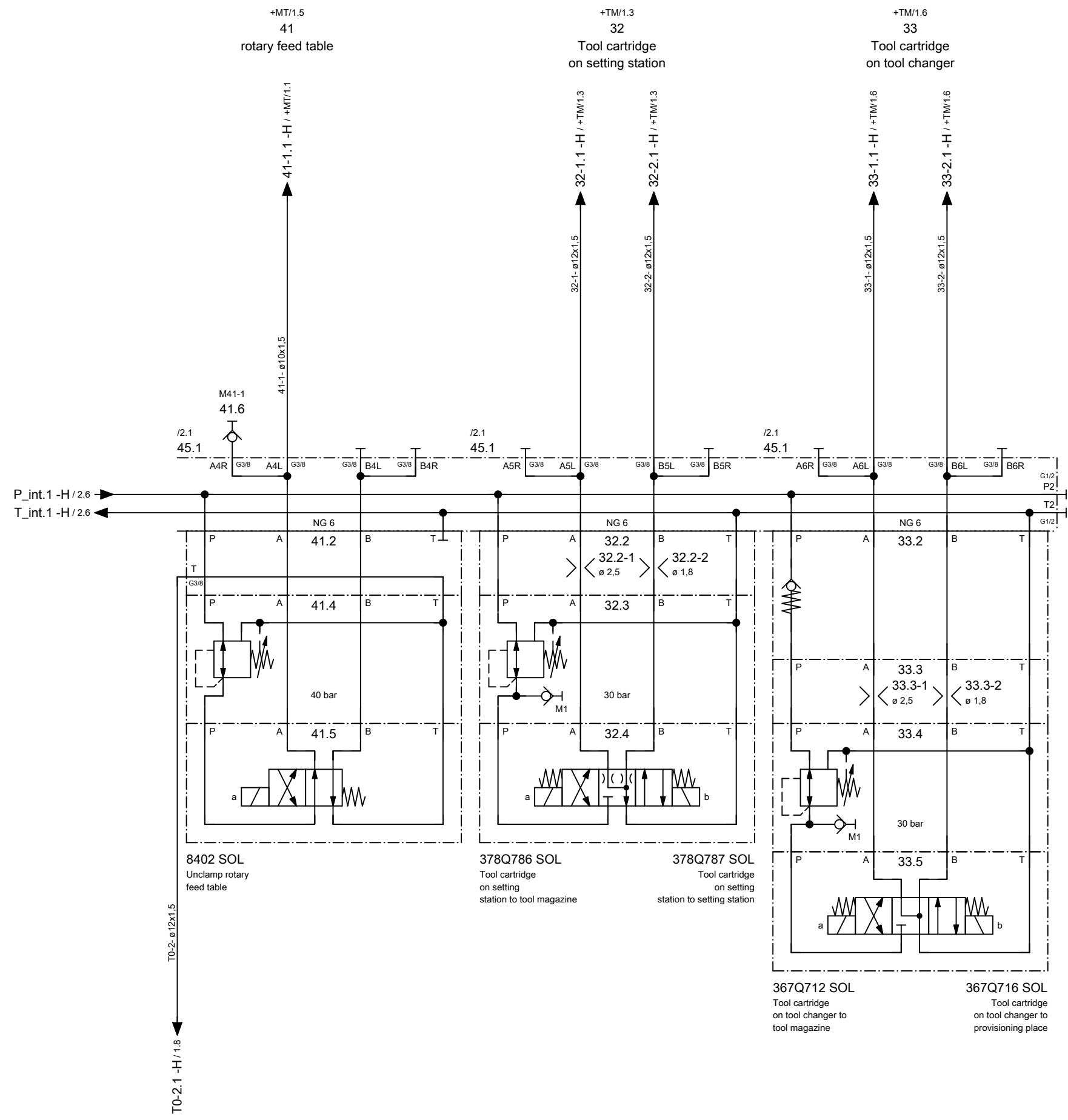


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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO |
| CAD-System | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | | Paccar, Columbus USA | project |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 28.09.2016 | AHFE/SAC | H 10000 MC | hydraulic diagram | Machine | =M54802 |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | BENENNUNG/NAME/DENOMINAÇÃO | Document type |
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| | | | | | | | | Page name | 2 |
| | | | | | | | | INV-NR/INV-NO/NO-INV | |
| | | | | | | | | 14.502390 | |

Heller_2L

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← 2

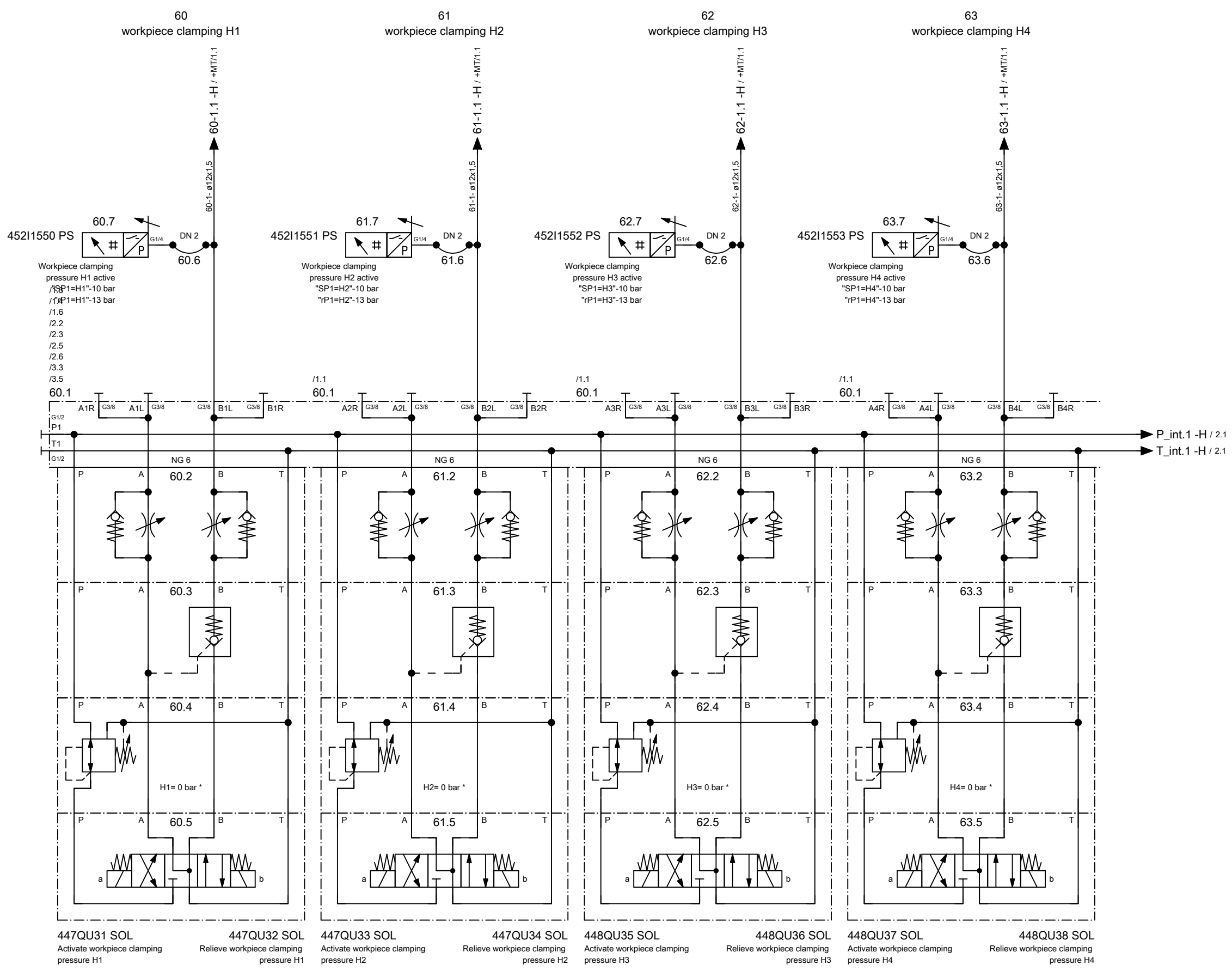
→ +H15/1

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|---|--|---------------|-------------------|------------|-----------|-------------------------|------------|--|------------------------|----------------------|---------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ./PROJ. | 45802.00 | <h1 style="text-align: center;">HELLER</h1> <p style="text-align: center;">hydraulic diagram</p> | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR./M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP./TYPE/ TIPO | H 10000 MC | | INV-NR./INV-NO/NO-INV | Machine | =M54802 |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/ZAJ | WERKSTÜCK/ PART/PEÇA | | 14.502390 | Document type | &H hydraulic diagram | |
| | | | | | | | | | Mounting position | +H1 HELP1 | |
| | | | | | | | | | Page name | 3 | |

Heller_2L

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* for pressure setting see the hydraulic diagram of the clamping fixture

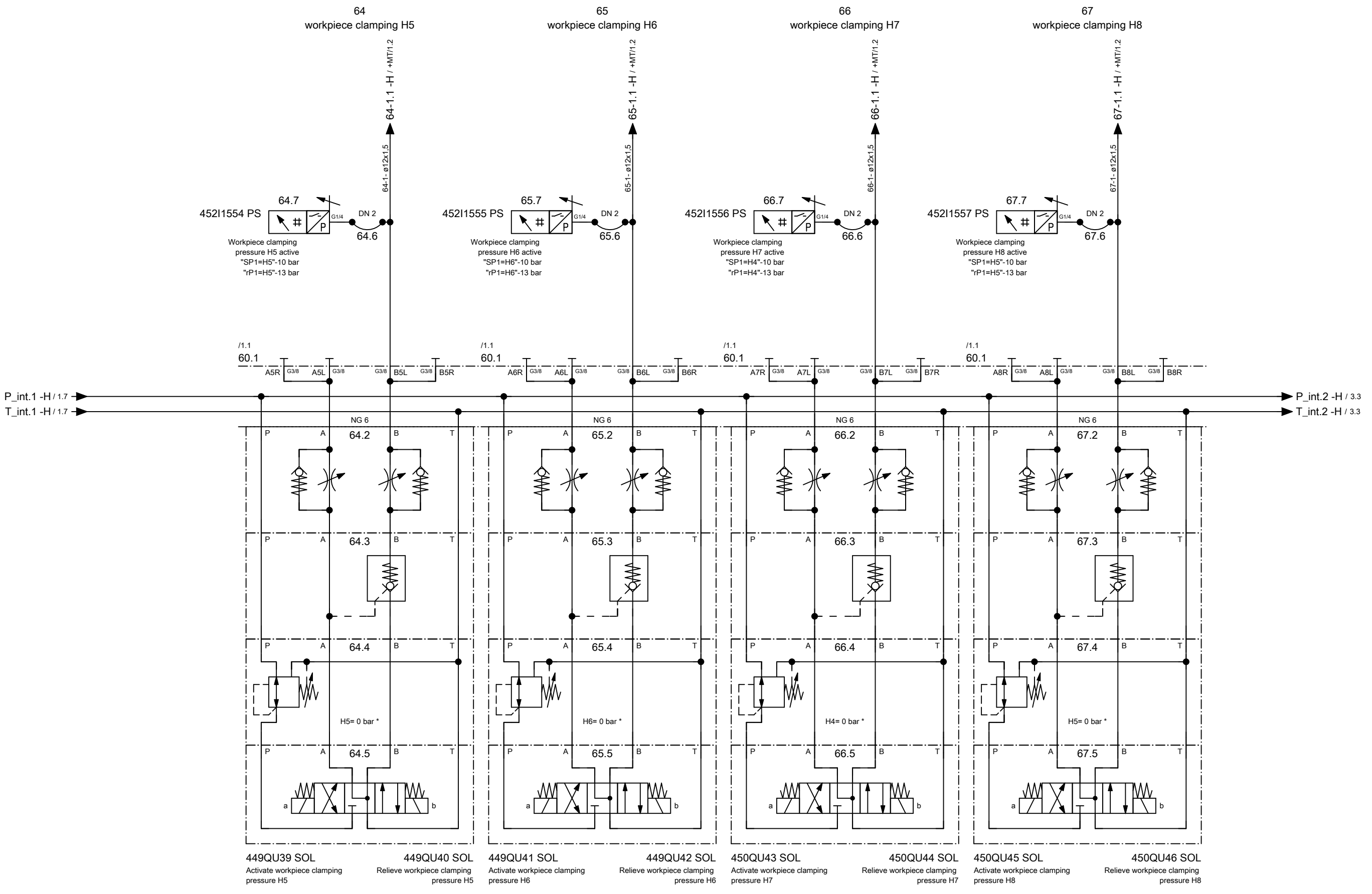
← +H1/3

→ 2

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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR./M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 14.07.2016 | AHFE/ZAJ | TYP./TYPE/ TIPO | H 10000 MC | hydraulic diagram | INV-NR./INV-NO/NO-INV | Machine | =M54802 |
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| | | | | | | | | | Page name | 1 | |

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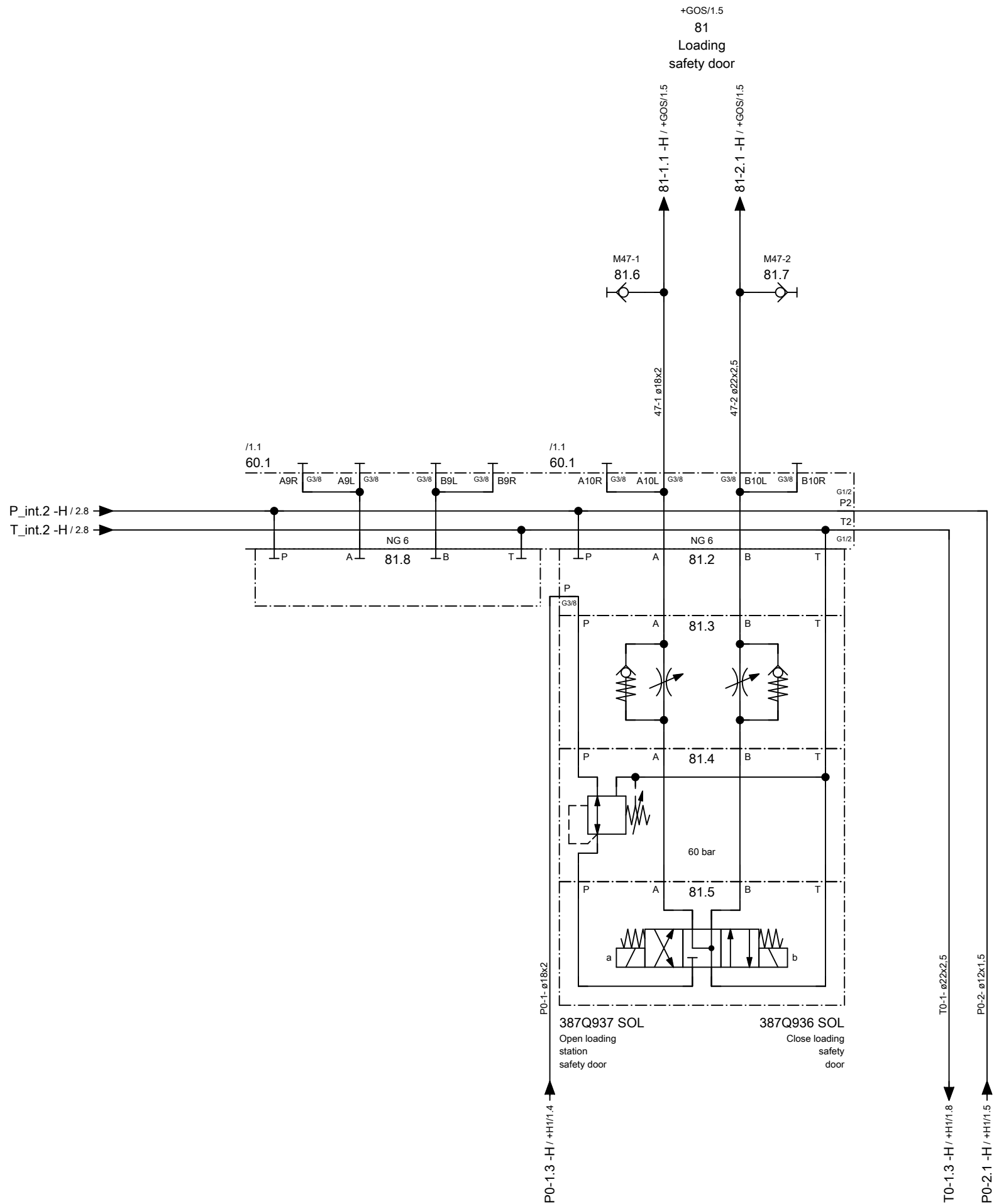


* for pressure setting see the hydraulic diagram of the clamping fixture

| | | | | | | | | | | | |
|---|--|--|--|----------------------|------------|--|---|------------------------|-----------------|----------------------|--|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | PROJ./PROJ./PROJ. | 54802.00 | | <h1 style="text-align: center;">HELLER</h1> | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | | |
| CAD-System | | | | M-NR/M-NO/M-NO | M54802 | | | Paccar, Columbus USA | project | | |
| ePLAN 2.2.5 | | | | TYP/TYPO/ TIPO | H 10000 MC | | BENENNUNG/NAME/DENOMINAÇÃO | INV-NR/INV-NO/NO-INV | | | |
| URSPR./ORIG. | | | | WERKSTÜCK/ PART/PEÇA | | | 14.502391 | | Machine | | |
| ERS./REP. | | | | | | | | Document type | | MP.05480200_F | |
| ERS.D./REP.W. | | | | | | | | Mounting position | | =M54802 | |
| | | | | | | | | Page name | | &H hydraulic diagram | |
| | | | | | | | | | | HELP1/5 | |
| | | | | | | | | | | 2 | |
| | | | | | | | | | | A3 | |

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← 2

+MT/1 →

| | | | | | | | | | | | | | |
|---|--|--|--|---------------|-------------------|------------|-----------|-------------------------|------------|------------------------------------|------------------------|----------------------|---------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ./PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 14.07.2016 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | 14.502391, 13.502960, 13.503879 | Document type | &H hydraulic diagram | |
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| | | | | | | | | | | | Page name | 3 | |

Heller_2L

A3

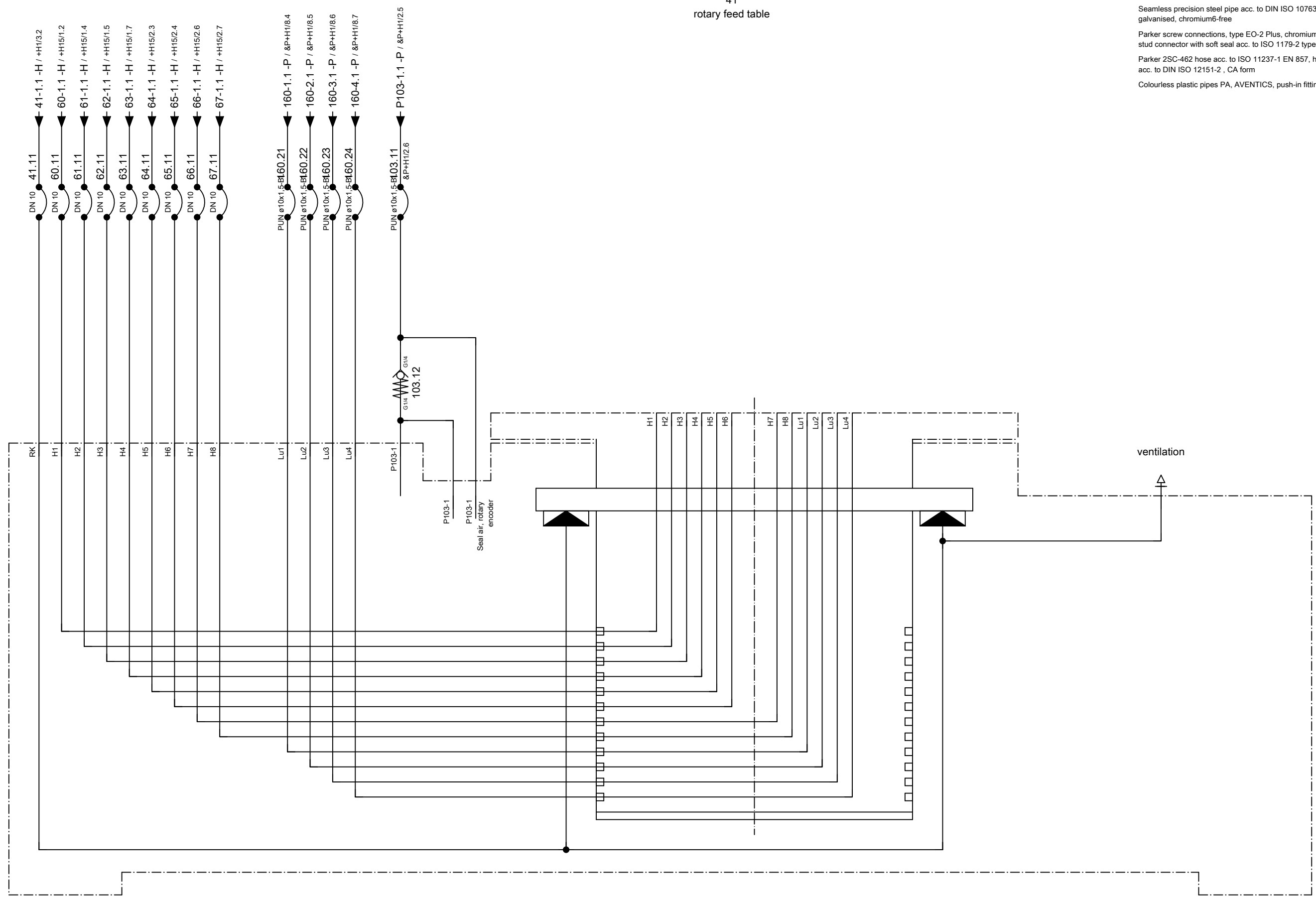
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+H1/3.2
41
rotary feed table

Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form
Colourless plastic pipes PA, AVENTICS, push-in fittings, Steckfix



41.1
Rotary axis

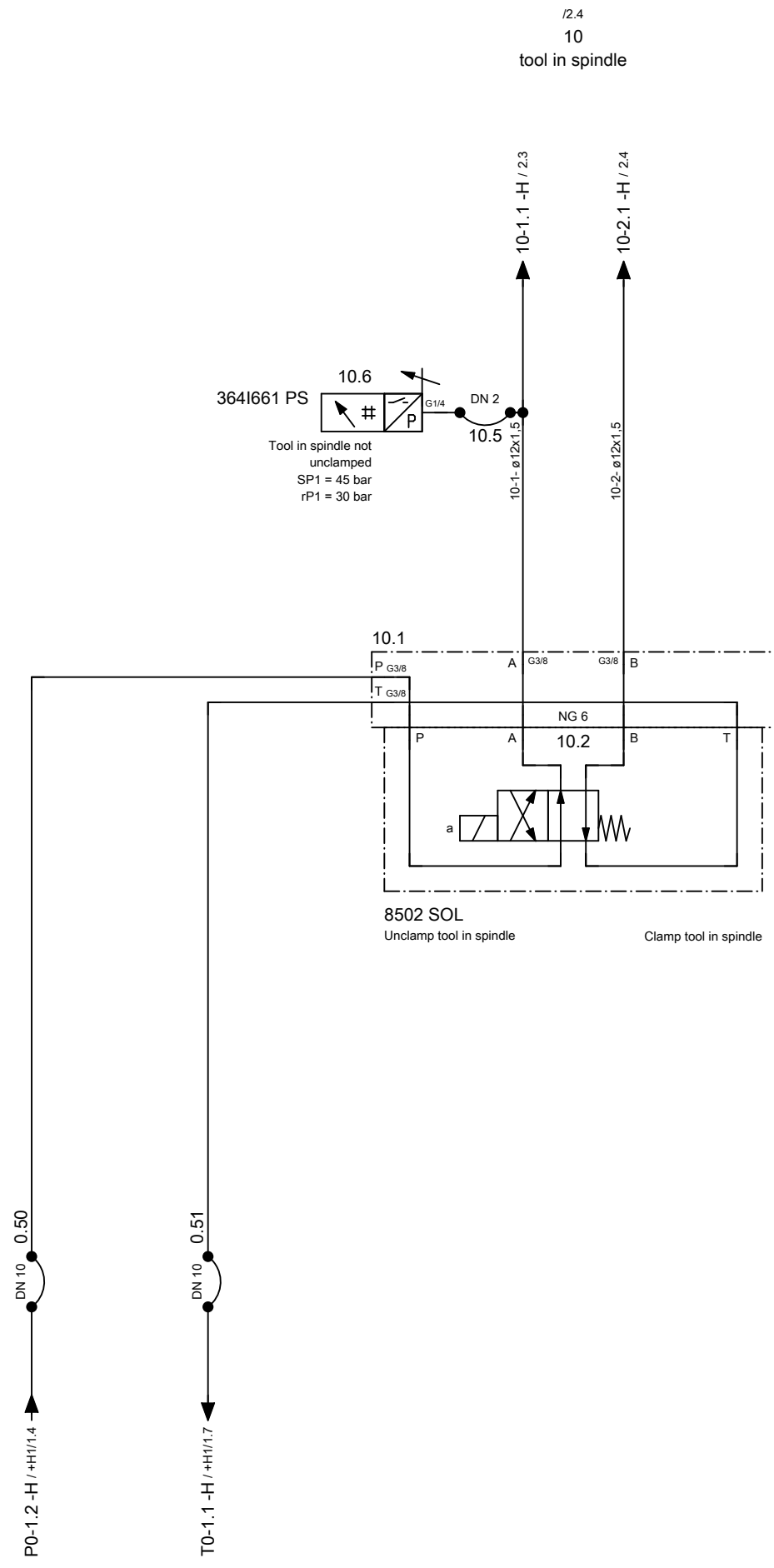
← +H15/3

+MU/1 →

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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
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| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | hydraulic diagram | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | | Document type | &H hydraulic diagram |
| | | | | | | | | | Mounting position | +MT table | |
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← +MT/1

2 →

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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME |
| CAD-System ePLAN 2.2.5 | URSPR./ORIG. | GEPR./CHECK./REG. | | | |
| | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | |
| | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | |

| | |
|----------------------|------------|
| PROJ./PROJ./PROJ. | 54802.00 |
| M-NR./M-NO./M-NO | M54802 |
| TYP./TYPE./TIPO | H 10000 MC |
| WERKSTÜCK./PART/PEÇA | |

| | |
|-------------------|--|
| HELLER | |
| hydraulic diagram | |

| | |
|------------------------|----------------------|
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| INV-NR./INV-NO/NO-INV | 14.502392 |

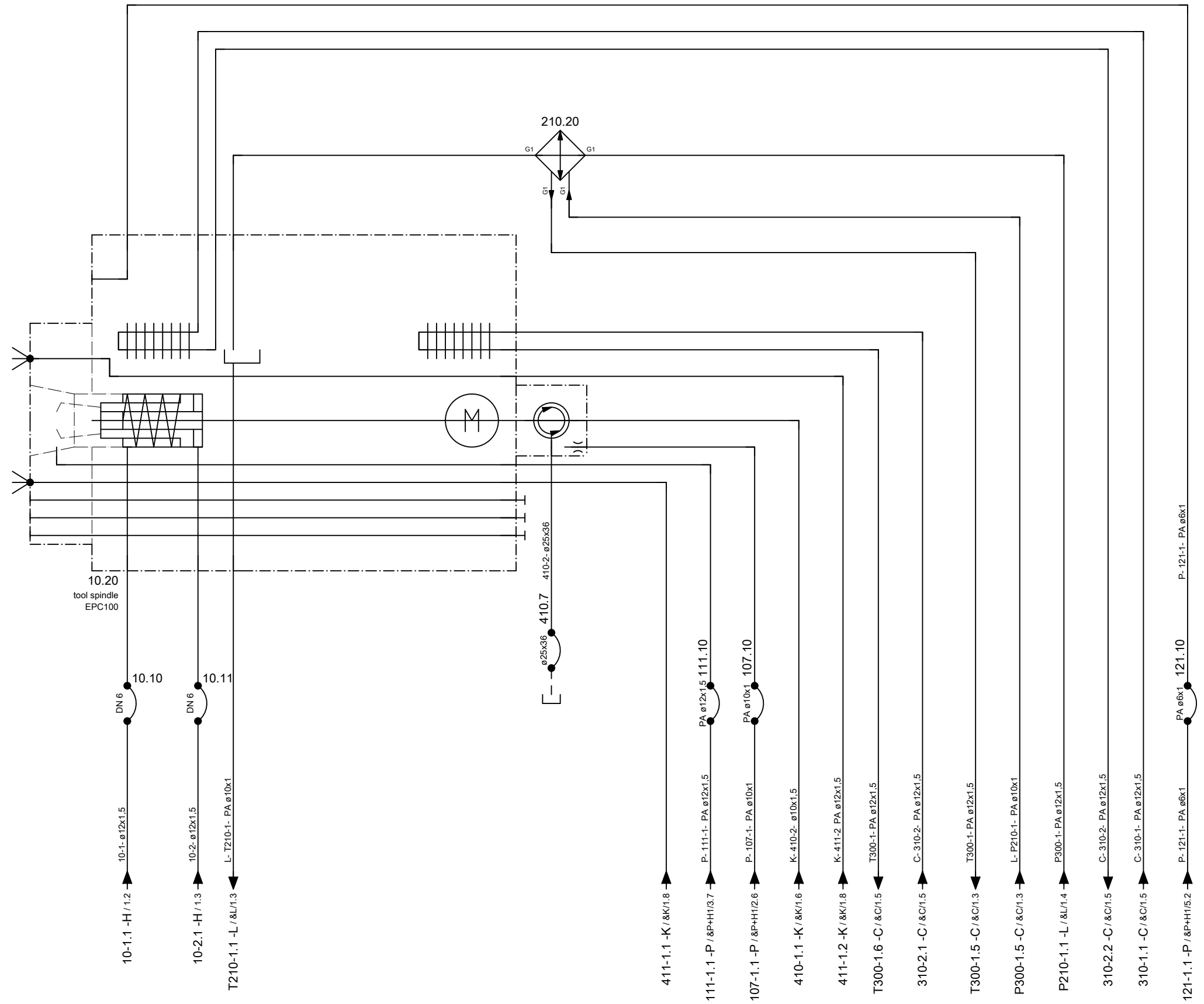
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|-------------------|---------|-------------------|
| PLAN/PLAN/PLANO | project | MP.05480200_F |
| Machine | | =M54802 |
| Document type | &H | hydraulic diagram |
| Mounting position | +MU | unit |
| Page name | | 1 |

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/1.2
10
tool in spindle

&L/1.4
210
gear lubrication



reservoir capacity 5 L
process medium lubrication oil ISO-L-CKC 46
acc. to ISO 6743-6 and ISO 3448

← 1

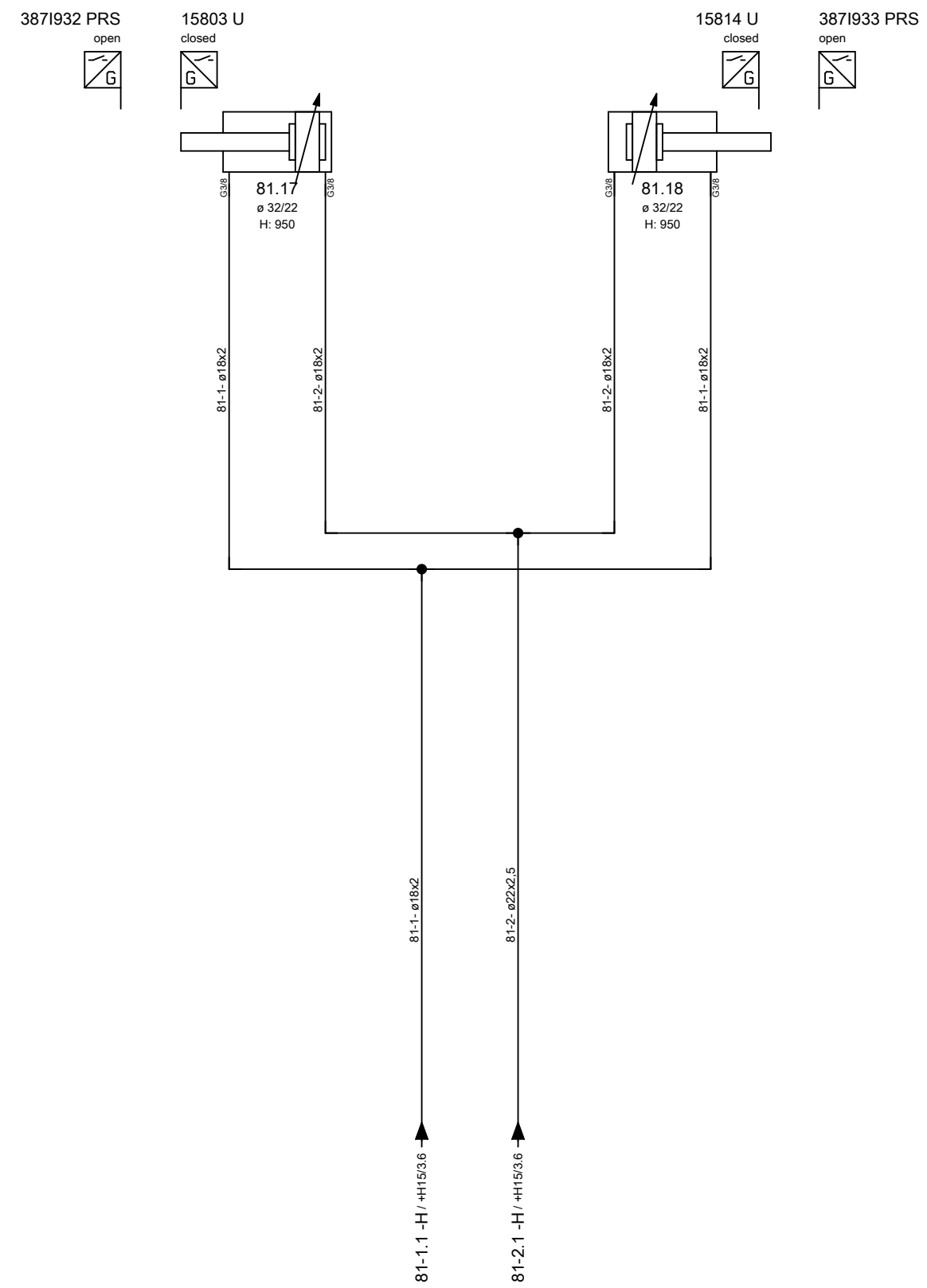
+GOS/1 →

| | | | | | | | | | | | | | |
|---|--|--|--|---------------|-------------------|------------|------------|-------------------------|------------|--|------------------------|----------------------|---------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ./PROJ. | 54802.00 | <h1 style="text-align: center;">HELLER</h1> <p style="text-align: center;">hydraulic diagram</p> | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 19.10.2016 | AHFE/HJ001 | TYP/TYPE/ TIPO | H 10000 MC | | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | Document type | &H hydraulic diagram | |
| | | | | | | | | | | | Mounting position | +MU unit | |
| | | | | | | | | | | | Page name | 2 | |

Änderungen nur im CAD-Original!
Changes in CAD only!
Mudanças no original CAD somente!

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+H15/3.6
81
loading hatch



← +MU/2

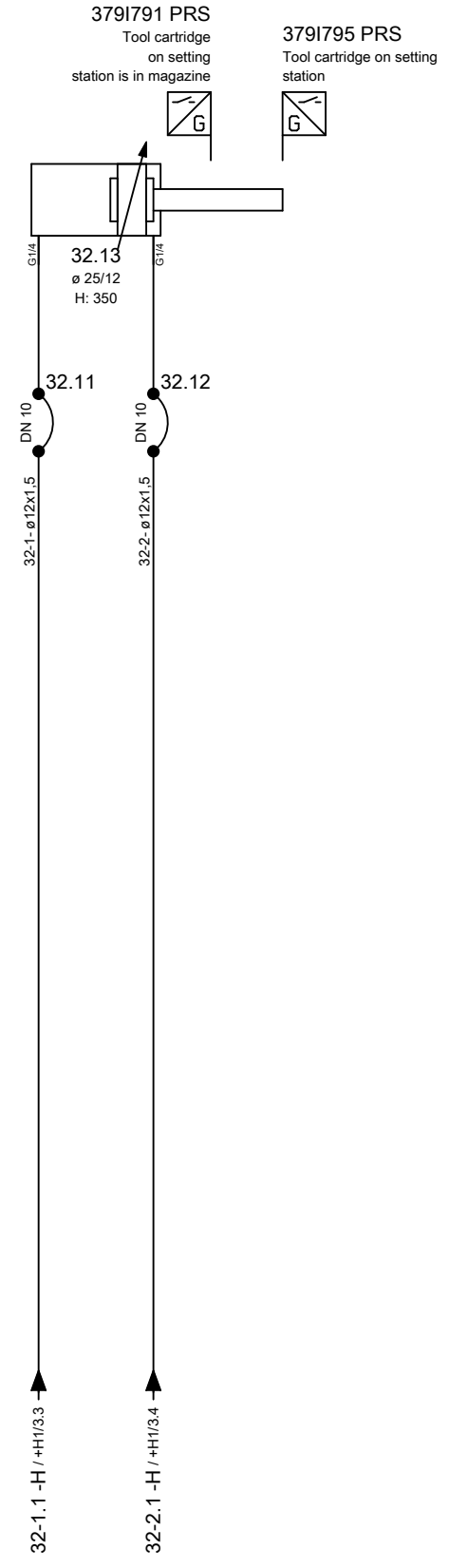
+TM/1 →

| | | | | | | | | | | | |
|---|---------------|--|--|---------------------|-----------|---------------|-------------------------|-----------------|---------------|-------------------|--------------------------------|
| | | | | PROJ./PROJ./PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | | | |
| | | | | M-NR./M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F | | |
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | Machine | =M54802 | | |
| CAD-System | URSPR./ORIG. | | | GEPR./CHECK./REG. | | | TYP/TYPE/ TIPO | | H 10000 MC | | |
| | ERS./REP. | | | BEARB./CHG./ALT. | | | 14.07.2016 | | | Document type | &H hydraulic diagram |
| | ERS.D./REP.W. | | | GEZ./DRAWN/DES. | | | 14.03.2016 | | | Mounting position | +GOS guarding - operating side |
| ePLAN 2.2.5 | | | | AHFE/HOP | | | WERKSTÜCK/ PART/PEÇA | | Page name | 1 | |
| | | | | | | | | | A3 | | |

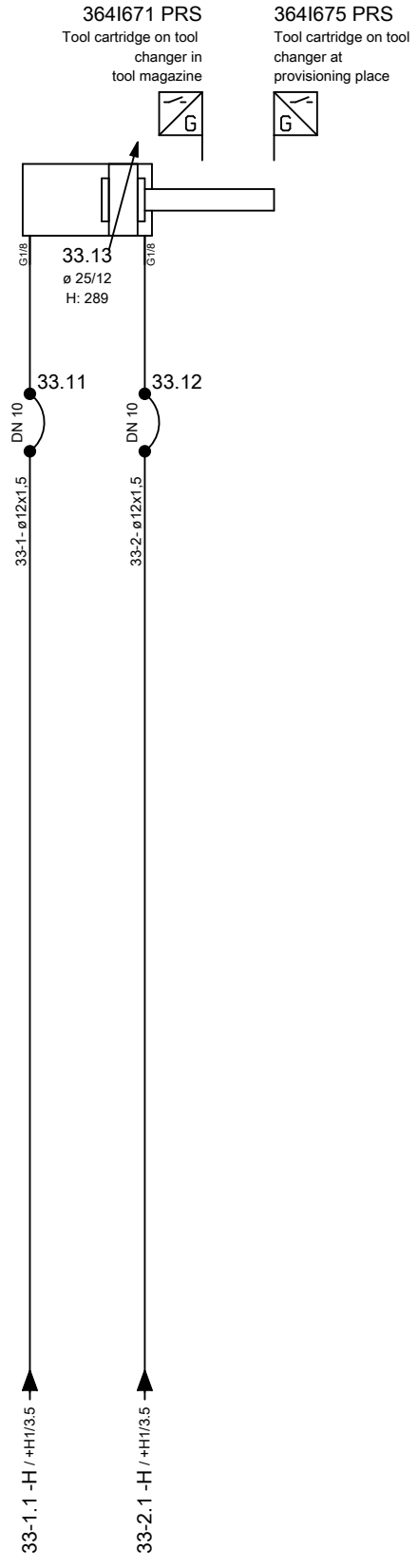
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Atenção! Atenção DIN 34

+H1/3.4
32
Tool cartridge
on setting station



+H1/3.5
33
Tool cartridge
on tool changer



← +GOS/1 &P+0 →

| | | | | | | | | | | |
|---|--|---------------|-------------------|------------|-----------|-------------------------|-------------------|------------------------|-----------------|---------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | H 10000 MC | hydraulic diagram | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | Document type | &H |
| | | | | | | | | Mounting position | +TM | tool magazine |
| | | | | | | | | Page name | 1 | |

Device tag list

Heller_Dynam_Bed_2L2C

| device tag | number | denomination | Type | Manufacturer | Heller no. | device tag | number | denomination | Type | Manufacturer | Heller no. |
|-------------|--------|---------------------------|--------------------------------------|------------------------|------------|-------------|--------|---------------------------|--------------------------------|------------------------|------------|
| +H1-100.1 | 1 | start-up valve | MS9-EM-G-VS 562178 | Festo | 01.107653 | +H1-102.1-1 | 1 | filter element | MS4-LFP-C 534501 | Festo | 01.109899 |
| +H1-100.2 | 1 | silencer | U-1 B 151990 | Festo | 01.107197 | +H1-102.2 | 1 | superfine air filter | MS4-LFM-1/4-AUV 535768 | Festo | 01.106321 |
| +H1-100.3 | 1 | filter pressure regulator | MS9-LFR-G-D6-CUV-DI-A4 562531 | Festo | 01.109059 | +H1-102.2-1 | 1 | filter element | MS4/D-MINI-LFM-A 162674 | Festo | 01.086419 |
| +H1-100.3-1 | 1 | filter element | MS9-LFP-C 570309 | Festo | 01.107824 | +M-102.3 | 1 | distributor block | FR-4-1/8-B 6701 | Festo | 01.034751 |
| +H1-100.4 | 1 | pressure gauge | MA-50-10-1/4 359873 | Festo | 01.092062 | | 1 | pressure regulator valve | MS4-LR-1/4-D5-A4 527690 | Festo | 01.106323 |
| +H1-100.5 | 1 | porting block | MS9-FRM-G-VS 564145 | Festo | 01.107195 | +H1-102.4 | 1 | pressure gauge | MA-50-2,5-1/4-EN 162837 | Festo | 01.105605 |
| +H1-100.6 | 1 | start-up valve | MS9-EE-G-V24P-VS 562177 | Festo | 01.107655 | +H1-102.5 | 1 | activated carbon filter | MS4-LFX-1/4-R 529467 | Festo | 01.109998 |
| +H1-100.7 | 1 | silencer | U-1 B 151990 | Festo | 01.107197 | +H1-102.5-1 | 1 | filter element | MS4/D-MINI-LFX 532912 | Festo | 01.106336 |
| +H1-100.9 | 1 | plate | filter element | Heller Maschinenfabrik | 10.500975 | +H1-102.7 | 1 | plate | filter element | Heller Maschinenfabrik | 10.500964 |
| +H1-100.10 | 1 | manifold | MS9-AGF 552956 | Festo | 01.107189 | +H1-102.8 | 1 | plate | filter element | Heller Maschinenfabrik | 10.500965 |
| +H1-100.11 | 1 | fastening angle | MS9-WP 552947 | Festo | 01.107190 | +H1-102.9 | 1 | plate | filter element | Heller Maschinenfabrik | 10.500966 |
| +H1-100.12 | 1 | fastening angle | MS9-WP 552947 | Festo | 01.107190 | +H1-102.10 | 1 | fastening angle | MS4-WP 532184 | Festo | 01.106320 |
| +H1-100.30 | 1 | distributor block | FR-8-1/4 2078 | Festo | 01.035408 | +H1-102.11 | 1 | fastening angle | MS4-WP 532184 | Festo | 01.106320 |
| +H1-100.31 | 1 | hose line | S100-CR-CR-0140 DN2 1400mm 250bar | Hydrotechnik | 01.098903 | +M-102.12 | 1 | plastic pipe | PUN-6x1-BL 159664 | Festo | 01.092357 |
| +H1-100.32 | 1 | pressure switch | PN7094 -1-10bar, G1/4 | IFM Electronic | 01.111724 | +M-102.13 | 1 | connecting piece | 226-270-02 | Heidenhain | 01.064398 |
| +H1-100.33 | 1 | Condensate separator | | Heller Maschinenfabrik | 00.789878 | +MC-102.14 | 1 | connecting piece | 226-270-02 | Heidenhain | 01.064398 |
| +H1-100.34 | 1 | ball valve | QH-1/4 9541 | Festo | 01.101540 | +M-102.15 | 1 | connecting piece | 226-270-02 | Heidenhain | 01.064398 |
| +H1-100.35 | 1 | silencer | AMTE-M-LH-G1 1205865 | Festo | 01.112166 | +H1-103.1 | 1 | porting block | MS6-FRM-1/2 529853 | Festo | 01.104403 |
| +H1-100.36 | 1 | shut-off valve | HE-G1-LO 197136 | Festo | 01.093956 | +H1-103.2 | 1 | pressure regulator valve | MS6-LRPB-1/2-D2-A8 535007 | Festo | 01.109947 |
| +H1-100.37 | 1 | flow control switch | SD6001 0,25-75 Nm3/h M12x1 NPT | IFM Electronic | 01.112294 | +H1-103.3 | 1 | pressure gauge | MAP-40-1-1/8-EN 161126 | Festo | 01.083257 |
| +H2-100.40 | 1 | distributor block | FR-4-1/2-B 6704 | Festo | 01.035406 | +H1-103.10 | 1 | fastening angle | MS6-WP 532195 | Festo | 01.106329 |
| +H1-100.49 | 1 | plastic pipe | PUN-12x2-BL 159670 | Festo | 01.089975 | +M-106.1 | 1 | connecting piece | 226-270-02 | Heidenhain | 01.064398 |
| +H1-101.1 | 1 | superfine air filter | MS6-LFM-3/8-AUV 529673 | Festo | 01.107200 | +H1-107.1 | 1 | pressure regulator valve | MS4-LRB-1/4-D6-A8 527692 | Festo | 01.109945 |
| +H1-101.1-1 | 1 | filter element | MS6-LFM-A 532909 | Festo | 01.107201 | +H1-107.2 | 1 | pressure gauge | MAP-40-1-1/8-EN 161126 | Festo | 01.083257 |
| +H1-101.10 | 1 | fastening angle | MS6-WP 532195 | Festo | 01.106329 | +H1-110.1 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 |
| +H1-101.11 | 1 | fastening angle | MS6-WP 532195 | Festo | 01.106329 | +H1-110.2 | 1 | directional control valve | MDH-5/3E-D-1-M12-C 197126 | Festo | 01.095685 |
| +H1-101.13 | 1 | plate | filter element | Heller Maschinenfabrik | 10.500967 | +H1-111.1 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 |
| +H1-102.1 | 1 | compressed air filter | MS4-LF-1/4-CRV 529397 | Festo | 01.109999 | +H1-111.2 | 1 | directional control valve | MDH-5/2-D-1-M12-FR-C 533010 | Festo | 01.095684 |

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Atenção! Atenção DIN 34

| | | | | | | | | | | | | | | | |
|--|--|---------------|--|-------------------|--|----------------------------|--|---------------------------|--|------------------------|--|-----------------|--|----------------------|--|
| ← &H+TM/1 | | | | | | PROJ./PROJ./PROJ. 54802.00 | | HELLER | | KUNDE/CUSTOMER/CLIENTE | | PLAN/PLAN/PLANO | | | |
| ART DER ÄNDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | | ZONE/ZONA | | DATUM/DATE | | | | Paccar, Columbus USA | | project | | MP.05480200_F | |
| CAD-System | | URSPR./ORIG. | | GEPR./CHECK./REG. | | M-NR/M-NO/ M-NO | | Device tag list pneumatic | | INV-NR/INV-NO/NO-INV | | Machine | | | |
| ePLAN 2.2.5 | | ERS./REP. | | BEARB./CHG./ALT. | | TYP/TYPE/ TIPO | | | | =&M54802 | | Document type | | &P pneumatic diagram | |
| | | ERS.D./REP.W. | | GEZ./DRAWN/DES. | | WERKSTÜCK/ PART/PEÇA | | | | Mounting position | | Page name | | 0 | |

0.a →

Device tag list

Heller_Dynam_Bed_2L2C

| device tag | number | denomination | Type | Manufacturer | Heller no. | device tag | number | denomination | Type | Manufacturer | Heller no. |
|------------|--------|---------------------------|--------------------------------|--------------|------------|-------------|--------|---------------------------|------------------------------|----------------|------------|
| +H1-112.1 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 | +GMS-131.3 | 1 | directional control valve | 3/2, G1/8 0 820 402 002 | AVENTICS | 01.076981 |
| +H1-113.1 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 | +GMS-131.4 | 1 | silencer | U-1/8 2307 | Festo | 01.034261 |
| +H1-113.2 | 1 | directional control valve | JMDH-5/2-D-1-M12-C 532687 | Festo | 01.095683 | +GMS-131.5 | 1 | plastic pipe | PUN-8x1,25-BL 159666 | Festo | 01.092358 |
| +MU-113.3 | 1 | plastic pipe | PUN-10x1,5-BL 159668 | Festo | 01.092359 | +GMS-131.6 | 1 | plastic pipe | PUN-8x1,25-BL 159666 | Festo | 01.092358 |
| +MU-113.4 | 1 | plastic pipe | PUN-10x1,5-BL 159668 | Festo | 01.092359 | +GMS-131.7 | 1 | plastic pipe | PUN-8x1,25-BL 159666 | Festo | 01.092358 |
| +MU-113.5 | 1 | throttle check valve | GRLA-1/4-B 151172 | Festo | 01.032677 | +GMS-131.8 | 1 | pneumatic cylinder | D40xH10 0 822 010 551 | AVENTICS | 01.092306 |
| +MU-113.6 | 1 | throttle check valve | GRLA-1/4-B 151172 | Festo | 01.032677 | +H1-132.1 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 |
| +MU-113.10 | 1 | pneumatic cylinder | DNC 50-50 PPV 163366 | Festo | 01.099235 | +H1-132.2 | 1 | cover plate | NDV-1-ISO 9489 | Festo | 01.083700 |
| +H1-115.1 | 1 | end plate | NEV-1DA/DB-ISO 320839 | Festo | 01.110979 | +H1-135.1 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 |
| +H1-115.2 | 1 | end plate | NEV-3DA/DB-ISO 320840 | Festo | 01.110981 | +H1-135.2 | 1 | cover plate | NDV-1-ISO 9489 | Festo | 01.083700 |
| +H1-115.4 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 | +H1-160.1 | 1 | input module | 19 504 230 | Norgren | 01.095501 |
| +H1-115.5 | 1 | directional control valve | MDH-5/2-D-1-M12-FR-C 533010 | Festo | 01.095684 | +H1-160.1-1 | 1 | pressure regulator valve | 19 24 001 | Norgren | 01.095502 |
| +H1-115.7 | 1 | connecting set | MS4-6-AMV 543489 | Festo | 01.109948 | +H1-160.1-2 | 1 | pressure gauge | 01 00 930 | Norgren | 01.095503 |
| +H1-115.8 | 1 | pressure regulator valve | MS4-LRB-1/4-D6-A8 527692 | Festo | 01.109945 | +H1-160.2 | 1 | directional control valve | MDH-5/3E-D-1-M12-C 197126 | Festo | 01.095685 |
| +H1-115.9 | 1 | pressure gauge | MA-40-10-1/8-EN 162835 | Festo | 01.109949 | +H1-160.3 | 1 | function module | 19 50 426 | Norgren | 01.095504 |
| +H1-115.10 | 1 | plug | NSC-1/4-1-ISO 11550 | Festo | 01.108866 | +H1-160.4 | 1 | adapter | 19 50 447 | Norgren | 01.095500 |
| +H1-115.13 | 1 | intermediate plate | ISO3-1 3815065 | Festo | 01.110980 | +H1-160.5 | 1 | pressure switch | PN7094 -1-10bar, G1/4 | IFM Electronic | 01.111724 |
| +H1-115.14 | 1 | silencer | AMTE-M-LH-G38 1205862 | Festo | 01.112270 | +H1-160.6 | 1 | function module | 19 50 426 | Norgren | 01.095504 |
| +H1-115.15 | 1 | silencer | AMTE-M-LH-G38 1205862 | Festo | 01.112270 | +H1-160.7 | 1 | adapter | 19 50 447 | Norgren | 01.095500 |
| +H1-116.1 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 | +H1-160.8 | 1 | pressure switch | PN7094 -1-10bar, G1/4 | IFM Electronic | 01.111724 |
| +H1-116.2 | 1 | cover plate | NDV-1-ISO 9489 | Festo | 01.083700 | +H1-160.9 | 1 | function module | 19 50 426 | Norgren | 01.095504 |
| +H1-117.1 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 | +H1-160.10 | 1 | adapter | 19 50 447 | Norgren | 01.095500 |
| +H1-117.2 | 1 | cover plate | NDV-1-ISO 9489 | Festo | 01.083700 | +H1-160.11 | 1 | pressure switch | PN7094 -1-10bar, G1/4 | IFM Electronic | 01.111724 |
| +H1-121.1 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 | +H1-160.12 | 1 | function module | 19 50 429 | Norgren | 01.095505 |
| +H1-121.2 | 1 | directional control valve | MDH-5/2-D-1-M12-FR-C 533010 | Festo | 01.095684 | +H1-160.13 | 1 | adapter | 19 50 447 | Norgren | 01.095500 |
| +H1-122.2 | 1 | cover plate | NDV-1-ISO 9489 | Festo | 01.083700 | +H1-160.14 | 1 | pressure switch | PN7094 -1-10bar, G1/4 | IFM Electronic | 01.111724 |
| +GMS-131.1 | 1 | directional control valve | F-5-1/4-B 8992 | Festo | 01.087927 | +H1-161.1 | 1 | subplate | NAV-1/2-3C-ISO 10175 | Festo | 01.082248 |
| | 1 | safety hood | FH 4500 | Festo | 01.087928 | +H1-161.2 | 1 | cover plate | NDV-3-ISO 10340 | Festo | 01.100120 |

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| | | | | | | | | | | | | | |
|--|--|--|--|---------------|-------------------|------------|-----------|-------------------------|------------|----------------------------|------------------------|-------------------|----------------------|
| ART DER ÄNDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ./PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 04.04.2017 | AHFE/ZAJ | WERKSTÜCK/ PART/PEÇA | | BENENNUNG/NAME/DENOMINAÇÃO | | Document type | &P pneumatic diagram |
| | | | | | | | | | | | | Mounting position | |
| | | | | | | | | | | | | Page name | 0.a |

Device tag list

Heller_Dynam_Bed_2L2C

| device tag | number | denomination | Type | Manufacturer | Heller no. |
|---------------|--------|----------------------------|----------------------------------|--------------|------------|
| +ATC-181.1 | 1 | manifold | AXT512-1A-B04F - ISO5599-1 Gr. 2 | SMC | 01.111800 |
| +ATC-181.2 | 1 | directional control valve | EVS7-8-FJG-D-3CVO-Q ISO2 | SMC | 01.102540 |
| +ATC-181.2-1 | 1 | connector adapter | 7000-41301-0000000-M12 | SMC | 01.102531 |
| +ATC-181.2-2 | 1 | connector adapter | 7000-41301-0000000-M12 | SMC | 01.102531 |
| +ATC-181.3 | 1 | end plate | AXT512-LA-04F - ISO5599-1 Gr. 2 | SMC | 01.111802 |
| +ATC-181.4 | 1 | silencer | AN400-04 G1/2 | SMC | 01.103674 |
| +ATC-181.5 | 1 | throttle check valve | ASP63F-04-12S | SMC | 01.102541 |
| +ATC-181.6 | 1 | pneumatic cylinder | RHCL40-880-DCL018HL | SMC | 01.102879 |
| +ATC-181.7 | 1 | silencer | AN400-04 G1/2 | SMC | 01.103674 |
| +ATC-181.11 | 1 | manifold | AXT512-1A-B04F - ISO5599-1 Gr. 2 | SMC | 01.111800 |
| +ATC-181.12 | 1 | directional control valve | EVS7-8-FG-S-3CVO-Q ISO2 | SMC | 01.110658 |
| +ATC-181.12-1 | 1 | connector adapter | 7000-41301-0000000-M12 | SMC | 01.102531 |
| +ATC-181.13 | 1 | end plate | AXT512-RA-04F - ISO5599-1 Gr. 2 | SMC | 01.111801 |
| +ATC-181.14 | 1 | throttle check valve | AS 3201 F-03-12S | SMC | 01.110661 |
| +GOS-184.1 | 1 | directional control valve | F-3-1/4-B 8984 | Festo | 01.102129 |
| +GOS-184.2 | 1 | silencer | U-1/4 B 6842 | Festo | 01.078584 |
| +GOS-184.4 | 1 | nozzle | D=1,2 - M5 K861 | Solex | 01.091653 |
| +GOS-184.5 | 1 | nozzle | D=1,2 - M5 K861 | Solex | 01.091653 |
| +H1-185.1 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 |
| +H1-185.2 | 1 | directional control valve | MDH-5/3E-D-1-M12-C 197126 | Festo | 01.095685 |
| +GMS-185.3 | 1 | throttle check valve | GRLA-1/8-QS-8-RS-B 162966 | Festo | 01.096680 |
| +GMS-185.4 | 1 | throttle check valve | GRLA-1/8-QS-8-RS-B 162966 | Festo | 01.096680 |
| +GMS-185.5 | 1 | pilot operated check valve | HGL-1/8 12938 | Festo | 01.077466 |
| +GMS-185.6 | 1 | pneumatic cylinder | RHCL40-525-DCM1071M | SMC | 01.102878 |
| +H1-185.7 | 1 | end plate | NEV-1DA/DB-ISO 10174 | Festo | 01.065868 |
| +H1-185.8 | 1 | silencer | AMTE-M-LH-G38 1205862 | Festo | 01.112270 |
| +H1-185.9 | 1 | silencer | AMTE-M-LH-G38 1205862 | Festo | 01.112270 |
| +H1-185.11 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 |

| device tag | number | denomination | Type | Manufacturer | Heller no. |
|------------|--------|---------------------------|---|--------------|------------|
| +H1-185.12 | 1 | directional control valve | MDH-5/2-D-1-M12-FR-C 533010 | Festo | 01.095684 |
| +H1-185.13 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 |
| +H1-185.14 | 1 | cover plate | NDV-1-ISO 9489 | Festo | 01.083700 |
| +H1-187.1 | 1 | subplate | NAV-1/4-1C-ISO 10173 | Festo | 01.065867 |
| +H1-187.2 | 1 | directional control valve | JMDH-5/2-D-1-M12-C 532687 | Festo | 01.095683 |
| +GMS-187.3 | 1 | throttle check valve | GRLA-1/8-QS-8-RS-B 162966 | Festo | 01.096680 |
| +GMS-187.4 | 1 | throttle check valve | GRLA-1/8-QS-8-RS-B 162966 | Festo | 01.096680 |
| +GMS-187.5 | 1 | pneumatic cylinder | D32x40H 0 822 240 0/. | AVENTICS | 01.098050 |
| +H1-187.6 | 1 | end plate | NEV-1DA/DB-ISO 10174 | Festo | 01.065868 |
| +H1-187.7 | 1 | silencer | AMTE-M-LH-G38 1205862 | Festo | 01.112270 |
| +H1-187.8 | 1 | silencer | AMTE-M-LH-G38 1205862 | Festo | 01.112270 |
| +GLS-190.1 | 1 | blowing valve | STA 06.1101 | Stäubli | 01.089020 |
| +GLS-190.2 | 1 | coiled hose | HJP06 M003/2AF151 DN10 2xG1/4A L=3000 gelb | Stäubli | 01.089274 |

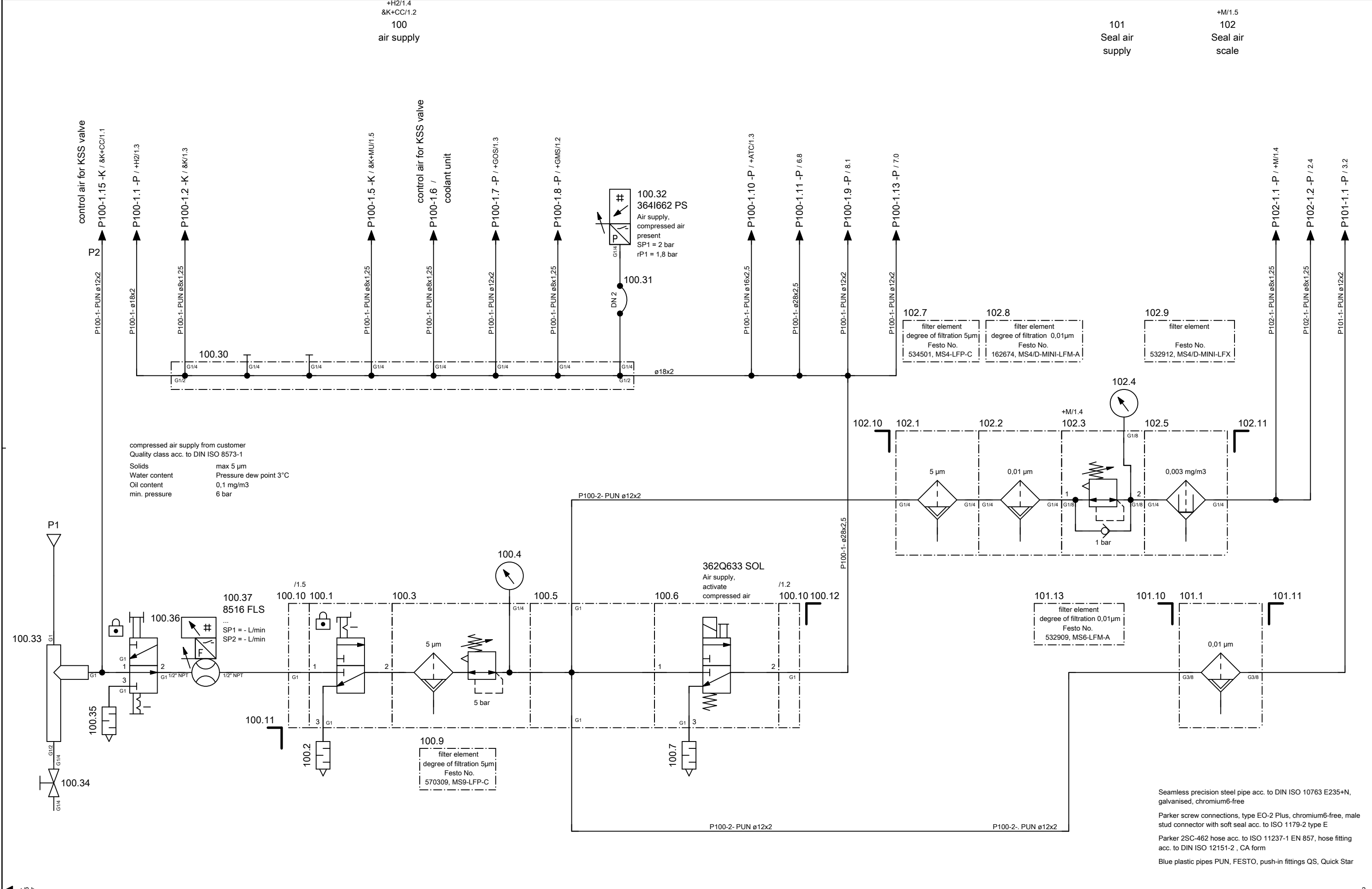
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|---|--|--|--|---|-----------------------------------|--|--|---|---------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO CAD-System ePLAN 2.2.5 | | URSPR./ORIG. ERS./REP. ERS.D./REP.W. | INDEX BEARB./CHG./ALT. GEZ./DRAWN/DES. | ZONE/ZONA DATUM/DATE 04.04.2017 04.04.2017 | NAME/NOME AHFE/ZAJ AHFE/ZAJ | PROJ./PROJ./PROJ. 54802.00 M-NR/M-NO/ M-NO M54802 TYP/TYPER/ TIPO H 10000 MC WERKSTÜCK/ PART/PEÇA | <div style="text-align: center; font-weight: bold; font-size: 1.2em;">HELLER</div> KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA BENENNUNG/NAME/DENOMINAÇÃO Device tag list pneumatic | PLAN/PLAN/PLANO project Machine Document type Mounting position Page name MP.05480200_F =M54802 &P pneumatic diagram 0.b | +H1/1 → |
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compressed air supply from customer
Quality class acc. to DIN ISO 8573-1
Solids max 5 µm
Water content Pressure dew point 3°C
Oil content 0,1 mg/m3
min. pressure 6 bar

Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form
Blue plastic pipes PUN, FESTO, push-in fittings QS, Quick Star

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|--|--|--|--|---|---|--|---|--|--|---------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO ePLAN 2.2.5 | | URSPR./ORIG. ERS./REP. ERS.D./REP.W. | GEPR./CHECK./REG. BEARB./CHG./ALT. GEZ./DRAWN/DES. | Index ZONE/ZONA DATUM/DATE NAME/NOME | PROJ./PROJ./PROJ. M-NR/M-NO/ M-NO TYP/TYPE/ TIPO WERKSTÜCK/ PART/PEÇA | HELLER 45802.00 M54802 H 10000 MC pneumatic diagram | KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA INV-NR/INV-NO/NO-INV 13.503884, 13.503129, 13.503919, 13.503920 | PLAN/PLAN/PLANO project Machine Document type Mounting position Page name | MP.05480200_F =M54802 &P pneumatic diagram +H1 HELP1 1 | 27 / 62 |
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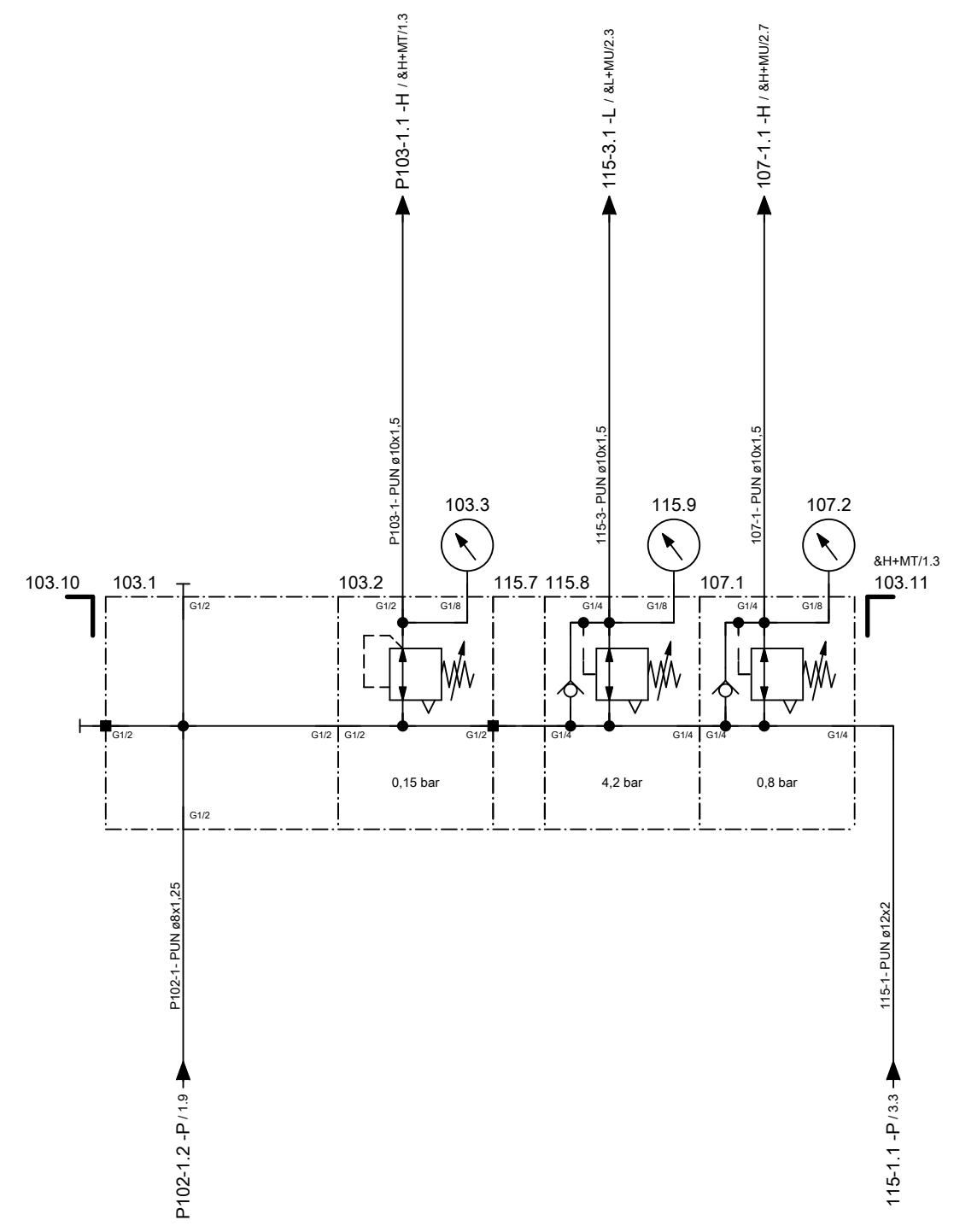
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119
weight relief

103
Seal air,
B-axis

3.3
115
lubrication compressed air

107
Seal air rotary distributor



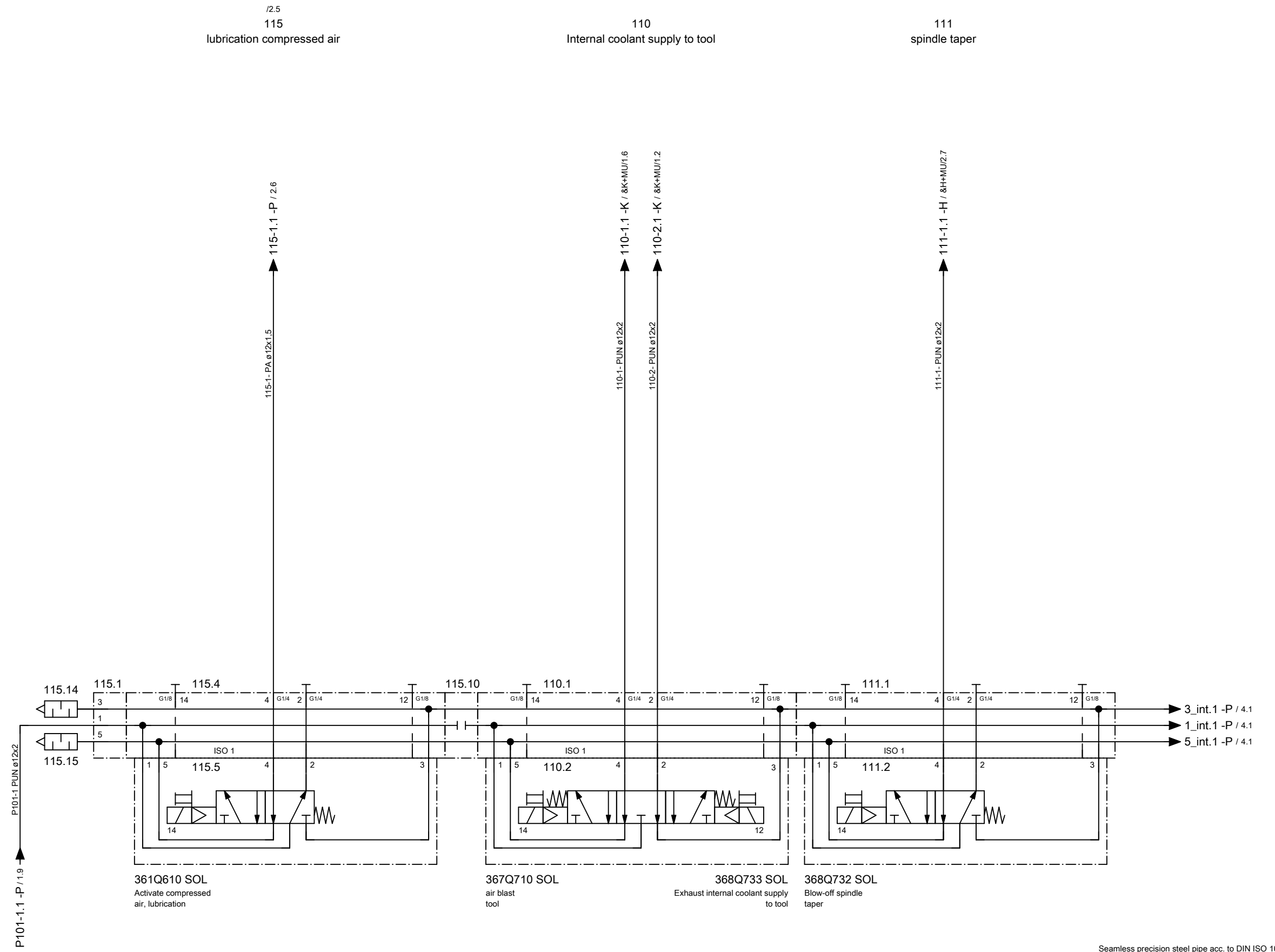
Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form
Blue plastic pipes PUN, FESTO, push-in fittings QS, Quick Star

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| <p>ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO</p> <p>CAD-System ePLAN 2.2.5</p> | | | | <p>Index</p> <p>BEARB./CHG./ALT.</p> <p>GEZ./DRAWN/DES.</p> | <p>ZONE/ZONA</p> <p>04.04.2017</p> <p>14.03.2016</p> | <p>DATUM/DATE</p> <p>AHFE/ZAJ</p> <p>AHFE/HOP</p> | <p>NAME/NOME</p> <p>AHFE/ZAJ</p> <p>AHFE/HOP</p> | <p>PROJ./PROJ/PROJ.</p> <p>54802.00</p> <p>M-NR/M-NO/M-NO</p> <p>M54802</p> <p>TYP/TYPE/TIPO</p> <p>H 10000 MC</p> <p>WERKSTÜCK/PART/PEÇA</p> | <p>HELLER</p> <p>pneumatic diagram</p> | <p>KUNDE/CUSTOMER/CLIENTE</p> <p>Paccar, Columbus USA</p> <p>INV-NR/INV-NO/NO-INV</p> <p>13.503596</p> | <p>PLAN/PLAN/PLANO</p> <p>project MP.05480200_F</p> <p>Machine =M54802</p> <p>Document type &P pneumatic diagram</p> <p>Mounting position +H1 HELP1</p> <p>Page name 2</p> |
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Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form
Blue plastic pipes PUN, FESTO, push-in fittings QS, Quick Star

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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO CAD-System ePLAN 2.2.5 | | URSPR./ORIG. ERS./REP. ERS.D./REP.W. | GEPR./CHECK./REG. BEARB./CHG./ALT. GEZ./DRAWN/DES. | Index ZONE/ZONA DATUM/DATE NAME/NOME | PROJ./PROJ./PROJ. M-NR/M-NO/ M-NO TYP/TYPE/ TIPO WERKSTÜCK/ PART/PEÇA | HELLER BENENNUNG/NAME/DENOMINAÇÃO pneumatic diagram | KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA INV-NR/INV-NO/NO-INV 13.503939 | PLAN/PLAN/PLANO project Machine Document type Mounting position Page name | MP.05480200_F =M54802 &P pneumatic diagram +H1 HELP1 3 | 4 → |
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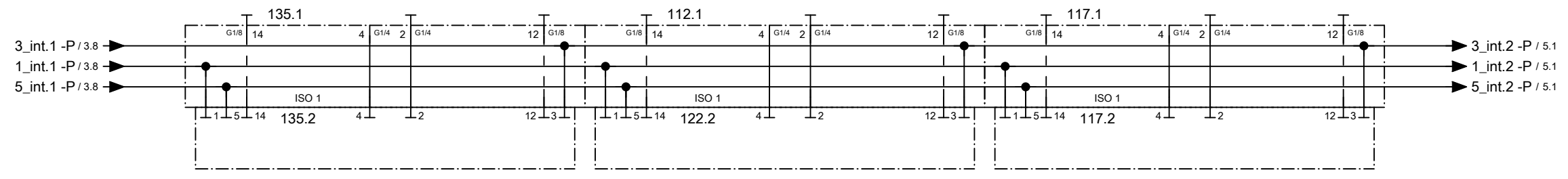
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135
Air
for tool cleaning

112
Air for multi-spindle head

117
Multi-spindle head location pad



Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form
Blue plastic pipes PUN, FESTO, push-in fittings QS, Quick Star

← 3

5 →

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|---|--|--|--|---------------|-------------------|------------|-----------|-------------------------|---|----------------------------|-------------------------|-------------------|-------------------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | <p style="text-align: center;">HELLER</p> <p style="text-align: center;">pneumatic diagram</p> | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | | |
| CAD-System | | | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | | Paccar, Columbus USA | project | MP.05480200_F | |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | M54802 | | | Machine | =M54802 | |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | TYP/TYPE/ TIPO | H 10000 MC | BENENNUNG/NAME/DENOMINAÇÃO | INV-NR/INV-NO/NO-INV | Document type | &P pneumatic diagram |
| | | | | | | | | WERKSTÜCK/ PART/PEÇA | | | 13.503939, 3x 13.503944 | Mounting position | +H1 HELP1 |
| | | | | | | | | | | | | Page name | 4 |

Heller_2L

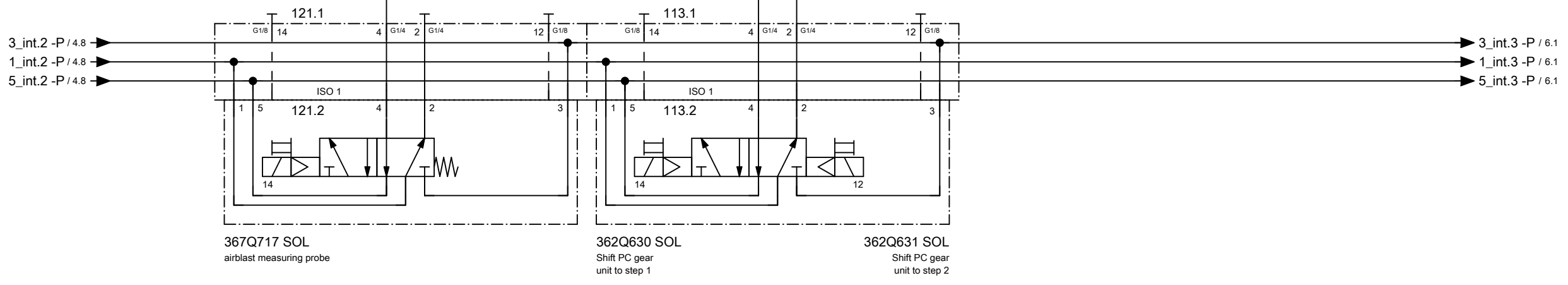
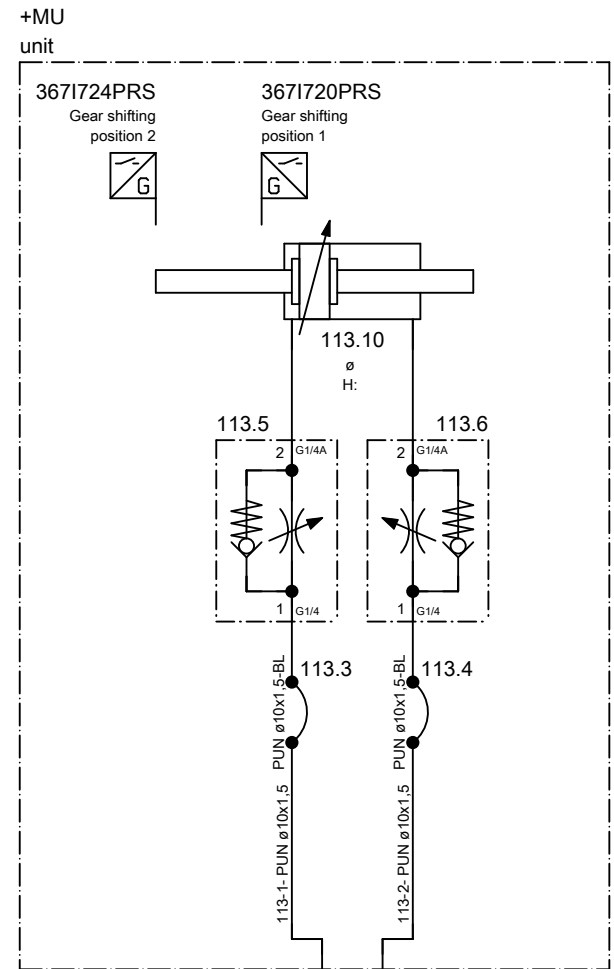
A3

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121
airblast measuring probe

113
gear shift



Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form
Blue plastic pipes PUN, FESTO, push-in fittings QS, Quick Star

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| PROJ./PROJ./PROJ. 54802.00 M-NR/M-NO/M-NO M54802 TYP/TYPE/TIPO H 10000 MC | | | | HELLER BENENNUNG/NAME/DENOMINAÇÃO pneumatic diagram | | KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA | | PLAN/PLAN/PLANO project MP.05480200_F Machine =M54802 | |
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO CAD-System ePLAN 2.2.5 | | | | | | INV-NR/INV-NO/NO-INV 13.503063, 13.503064 | | Document type &P pneumatic diagram Mounting position +H1 HELP1 Page name 5 | |
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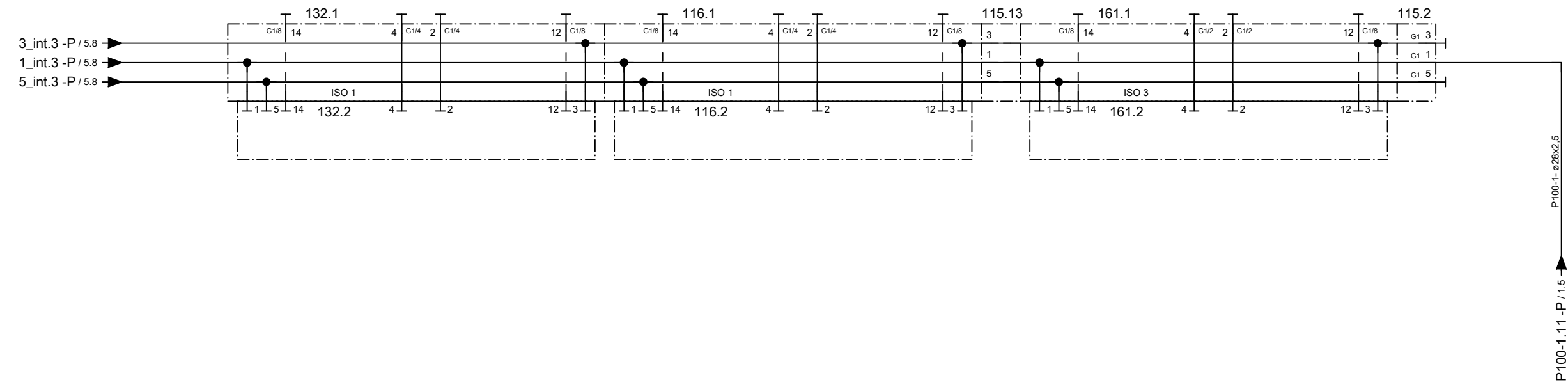
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132
Tool in gripper

116
Air
for spindle nozzles

161
Blow off work
area



P100-1-11-P/1.5
P100-1-ø28x2,5

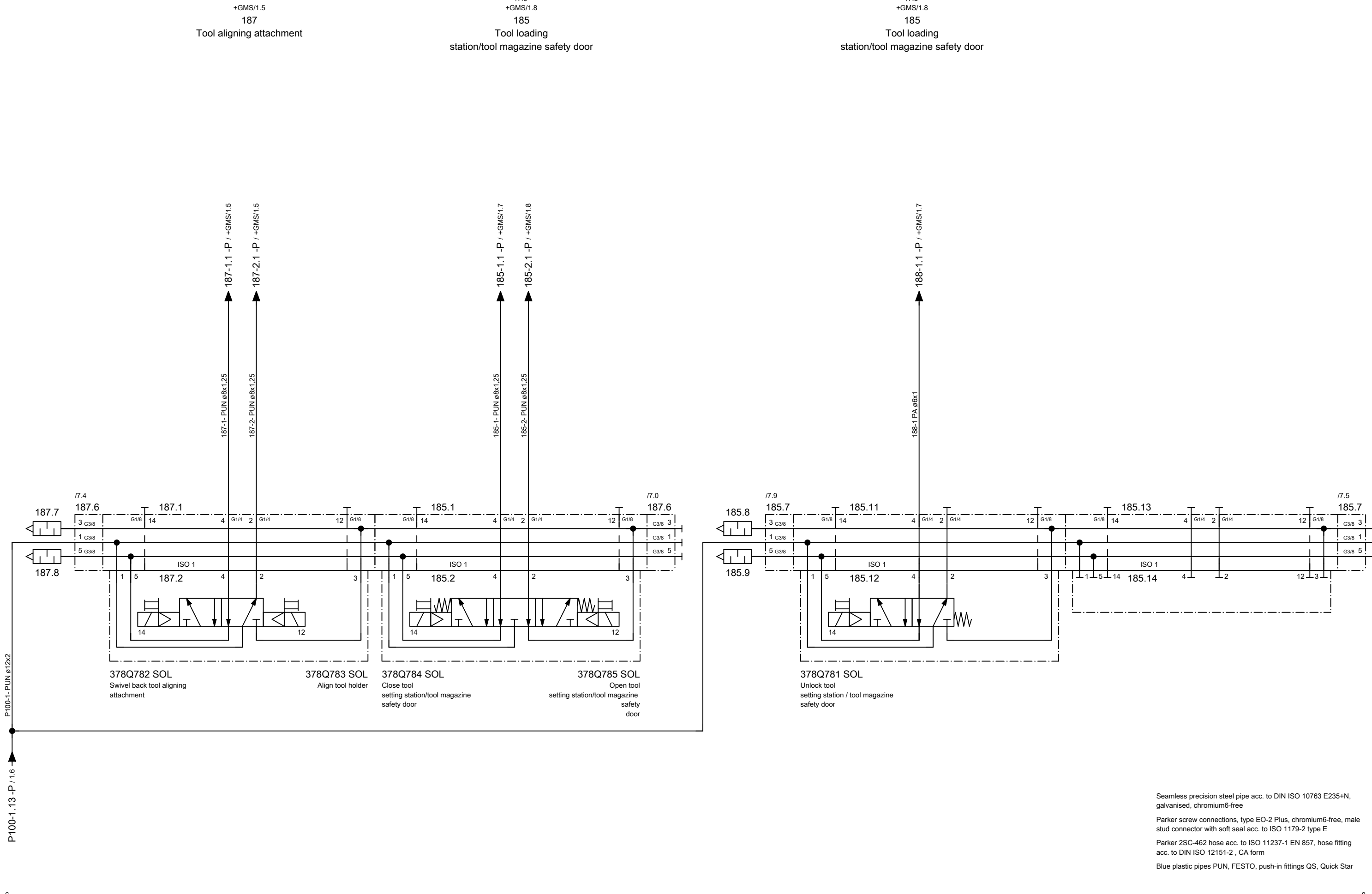
Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form
Blue plastic pipes PUN, FESTO, push-in fittings QS, Quick Star

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| PROJ./PROJ./PROJ. 54802.00 M-NR/M-NO/M-NO M54802 TYP/TYPE/TIPO H 10000 MC | | | | HELLER pneumatic diagram | | KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA | | PLAN/PLAN/PLANO project MP.05480200_F Machine =M54802 | |
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO CAD-System ePLAN 2.2.5 | | | | Index ZONE/ZONA DATUM/DATE NAME/NOME BEARB./CHG./ALT. 04.04.2017 AHFE/ZAJ GEZ./DRAWN/DES. 14.03.2016 AHFE/HOP | | BENENNUNG/NAME/DENOMINAÇÃO INV-NR/INV-NO/NO-INV 13.503939, 2x 13.503944, 13.503946 | | Document type &P pneumatic diagram Mounting position +H1 HELP1 Page name 6 | |

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Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form
Blue plastic pipes PUN, FESTO, push-in fittings QS, Quick Star

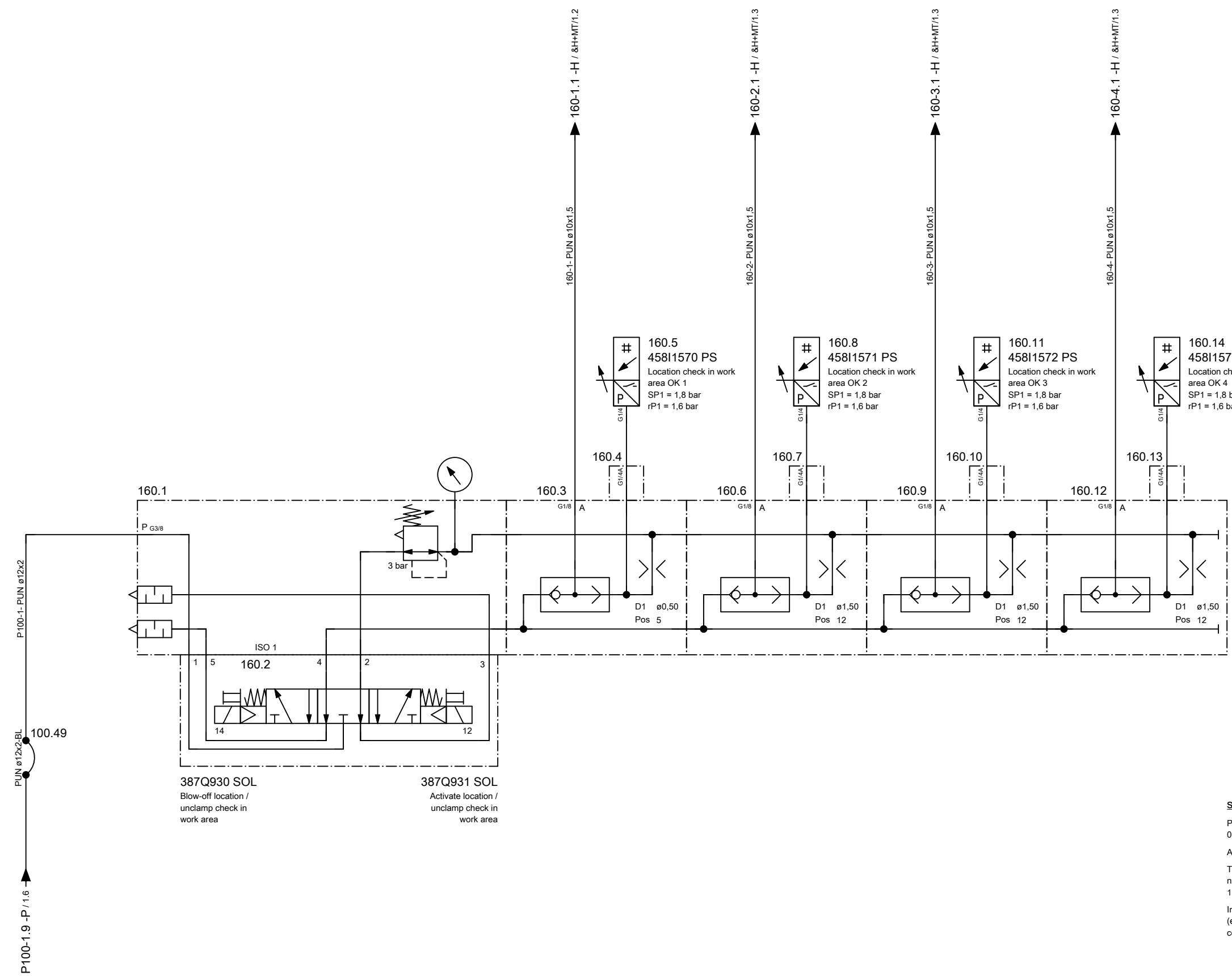
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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | <h1>HELLER</h1> | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
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| | | | | | | | | | | | Mounting position | +H1 HELP1 | |
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160
Location/unclamp check
work area



| nozzle wheel | nozzle ø |
|--------------|----------|
| 0 | 0,00 |
| 1 | 0,30 |
| 2 | 0,35 |
| 3 | 0,40 |
| 4 | 0,45 |
| 5 | 0,50 |
| 6 | 0,55 |
| 7 | 0,60 |
| 8 | 0,70 |
| 9 | 0,80 |
| 10 | 1,00 |
| 11 | 1,20 |
| 12 | 1,50 |
| 13 | 1,70 |
| 14 | 2,00 |
| 15 | 2,50 |

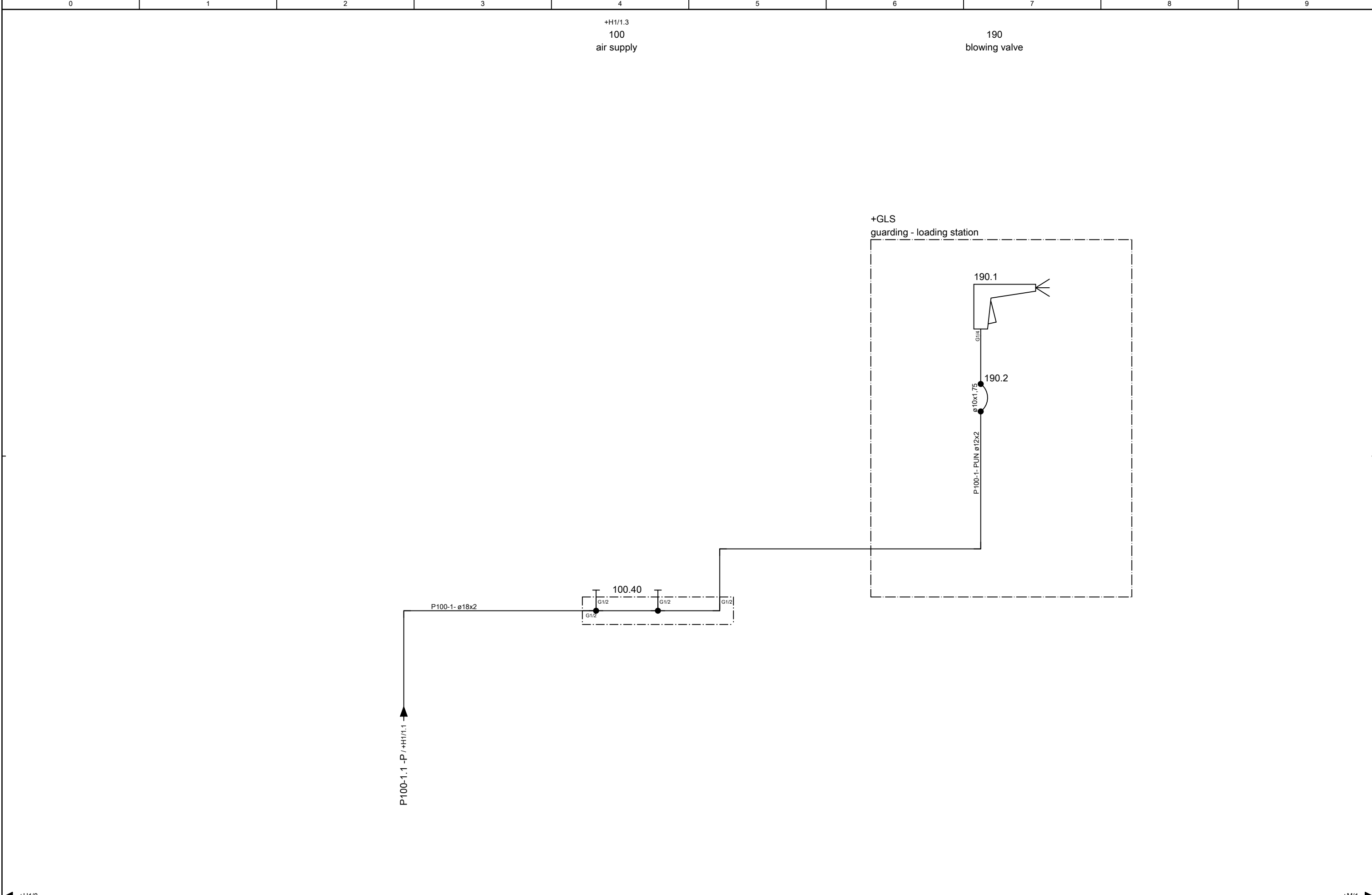
setting up the location check

Place the feeler gauge with a maximum tolerance (e.g. 0,03 mm) between workpiece and support.
Attention: do not cover discharge nozzle!
Turn nozzle wheel so many positions to the left (higher number = larger nozzle diameter) until a pressure of 1,8 bar (+ 0,2 bar) is set on the measuring connection.
Insert feeler gauge above max permissible tolerance (e.g. 0,04 mm) The pressure on the measuring connection C must be clearly below 1,8 bar.

| | | | | | | | | | |
|---|--|---|---|--|--|---|--|---|--|
| PROJ./PROJ./PROJ. 54802.00 M-NR/M-NO/M-NO M54802 TYP/TYPE/TIPO H 10000 MC | | | | HELLER BENENNUNG/NAME/DENOMINAÇÃO pneumatic diagram | | KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA INV-NR/INV-NO/NO-INV 13.503887 | | PLAN/PLAN/PLANO project MP.05480200_F Machine =M54802 Document type &P pneumatic diagram Mounting position +H1 HELP1 Page name 8 | |
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO CAD-System ePLAN 2.2.5 | | Index GEPR./CHECK./REG. BEARB./CHG./ALT. GEZ./DRAWN/DES. | ZONE/ZONA DATUM/DATE 14.07.2016 14.03.2016 | NAME/NOME AHFE/ZAJ AHFE/HOP | | | | | |

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| | | | | PROJ./PROJ./PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| | | | | M-NR/M-NO/M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | Machine | =M54802 |
| CAD-System ePLAN 2.2.5 | URSPR./ORIG. | GEPR./CHECK./REG. | | | | TYP/TYPER/ TIPO | H 10000 MC | | |
| | ERS./REP. | BEARB./CHG./ALT. | | 14.07.2016 | AHFE/ZAJ | WERKSTÜCK/ PART/PEÇA | | | |
| | ERS.D./REP.W. | GEZ./DRAWN/DES. | | 14.03.2016 | AHFE/HOP | | | | |
| | | | | | | BENENNUNG/NAME/DENOMINAÇÃO | INV-NR/INV-NO/NO-INV | Document type | &P pneumatic diagram |
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| | | | | | | | | Page name | 1 |

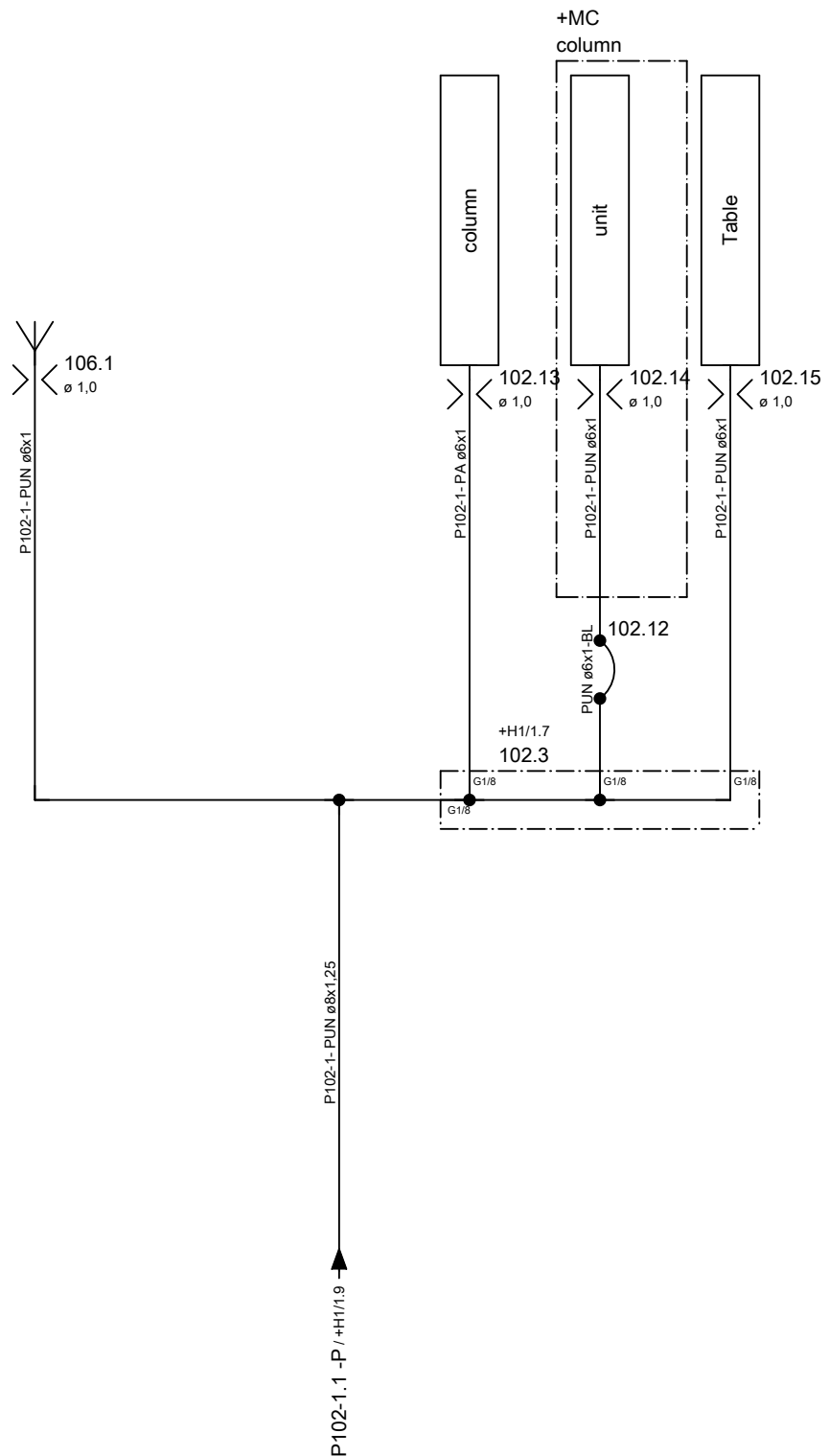
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106
seal air of tool break monitoring

+H1/1.8
102
Seal air
scale



← +H2/1

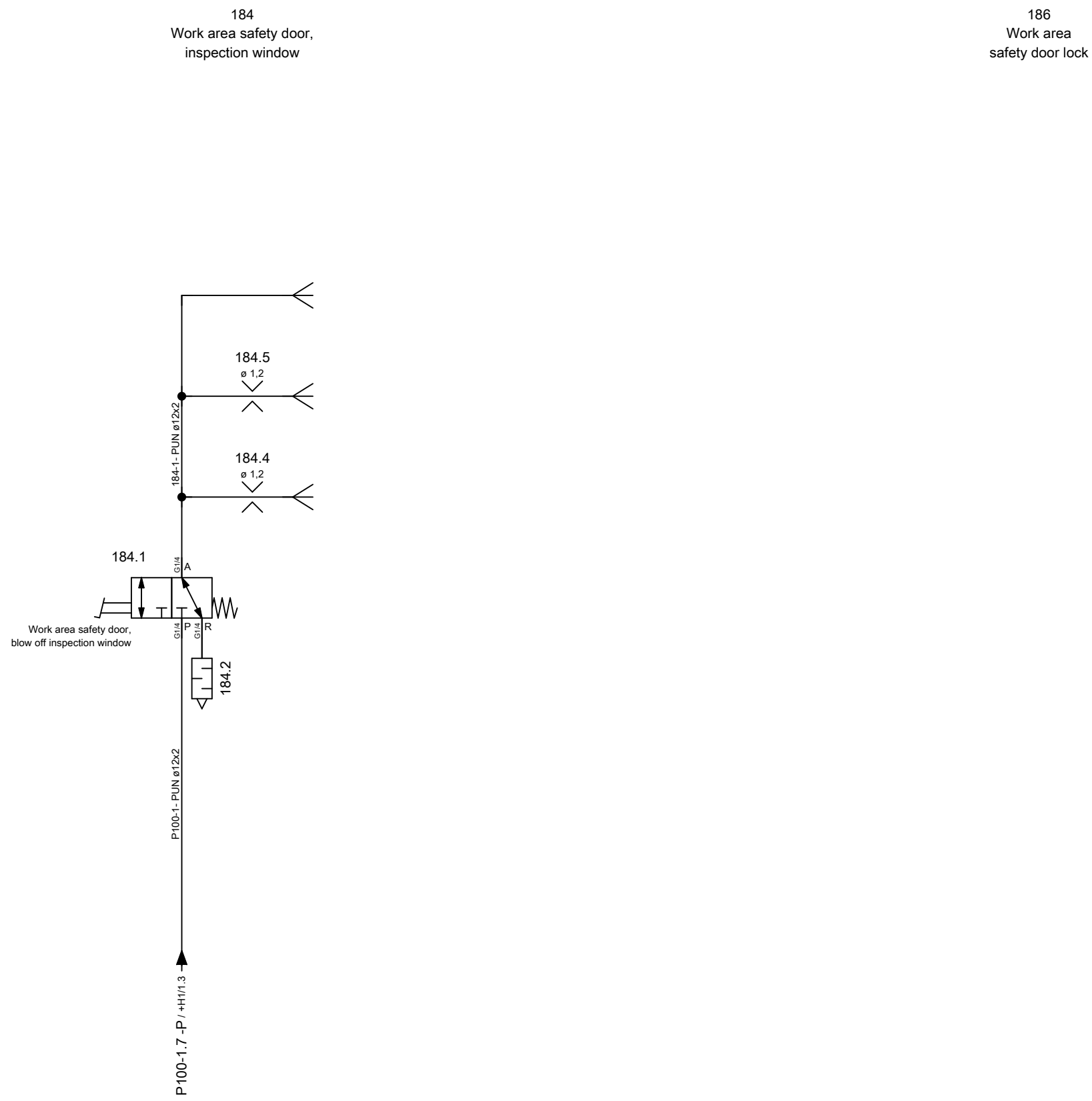
+GOS/1 →

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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ. PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | pneumatic diagram | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | | Document type | &P |
| | | | | | | | | | | | Mounting position | +M | machine |
| | | | | | | | | | | | Page name | 1 | |

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← +M/1

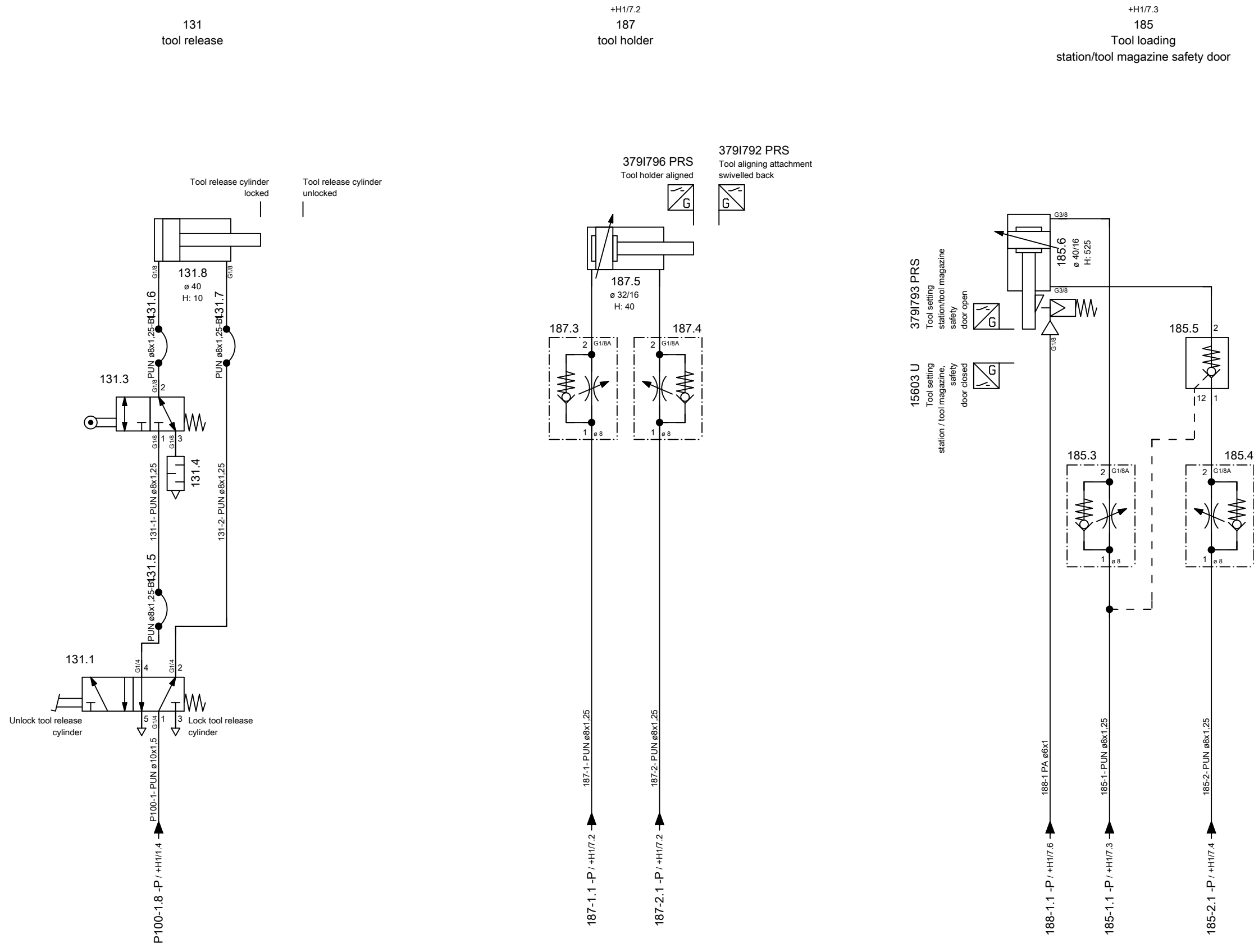
+GMS/1 →

| | | | | | | | | | | | | | |
|-------------|--|---------------|-------------------|-------|-----------|------------|-----------|-------------------------|------------|-------------------|------------------------|-----------------|---------------------------|
| CAD-System | | URSPPR./ORIG. | GEPR./CHECK./REG. | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | | | 04.04.2017 | AHFE/ZAJ | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | | | 14.03.2016 | AHFE/HOP | TYP/TYPE/ TIPO | H 10000 MC | pneumatic diagram | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | | | | | | | WERKSTÜCK/ PART/PEÇA | | | | Document type | &P |
| | | | | | | | | | | | Mounting position | +GOS | guarding - operating side |
| | | | | | | | | | | | Page name | 1 | |
| | | | | | | | | | | | | | A3 |

Heller_2L

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← +GOS/1 +ATC/1 →

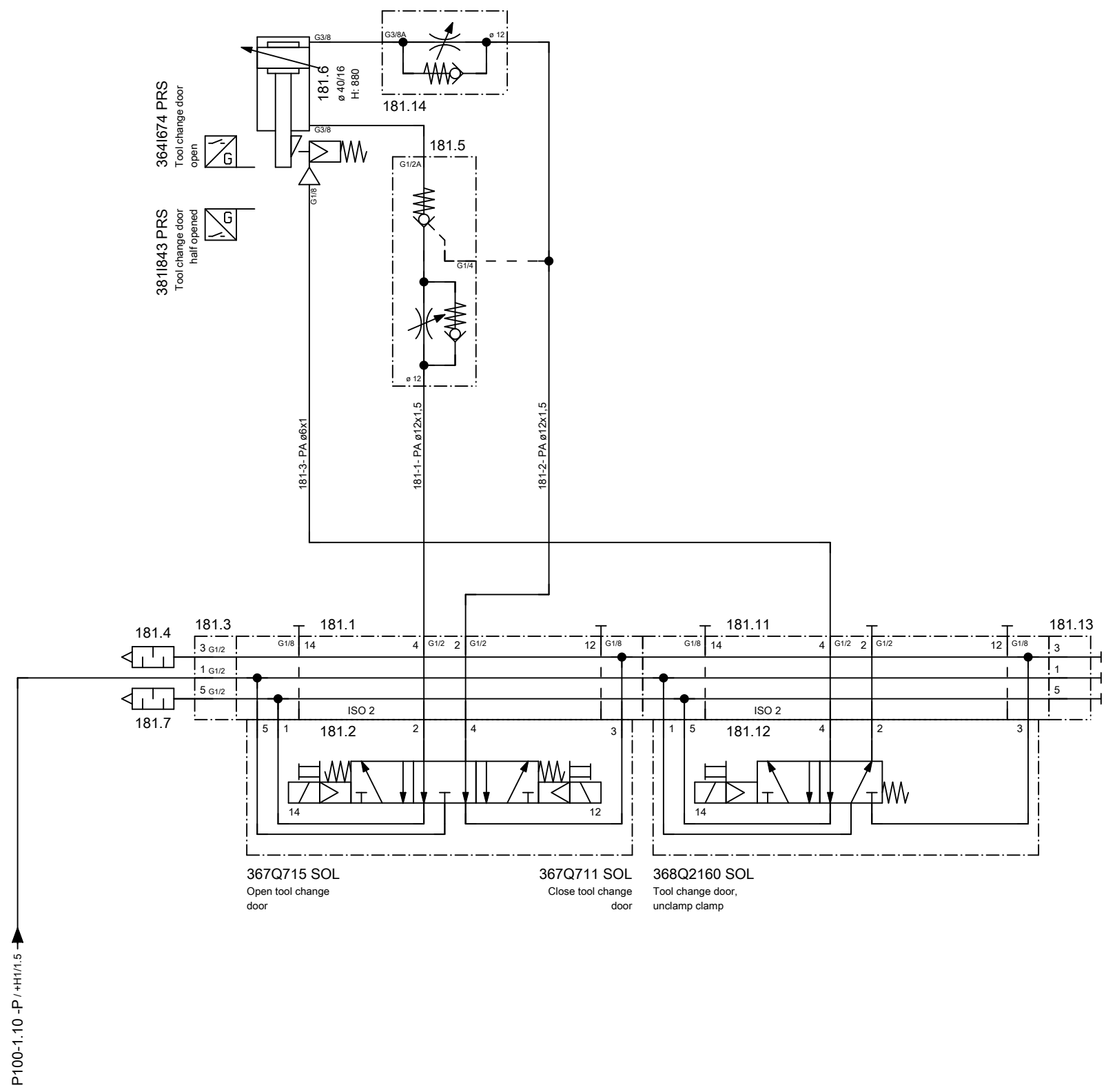
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|---|--|--|--|---------------|-------------------|------------|-----------|----------------------|------------|-------------------|------------------------|-------------------|-------------------|--------------------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | | |
| CAD-System | | | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR./M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F | |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP./TYPE/ TIPO | H 10000 MC | pneumatic diagram | INV-NR./INV-NO/NO-INV | Machine | =M54802 | |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | Document type | &P | pneumatic diagram | |
| | | | | | | | | | | | | Mounting position | +GMS | guarding - |
| | | | | | | | | | | | | Page name | 1 | magazin/maintenance side |

Heller_2L

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Tool change door



← +GMS/1 &L+0 →

| | | | | | | | | | | | | | |
|---|--|--|--|---------------|-------------------|------------|-----------|-------------------------|------------|---------------|------------------------|----------------------|---------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR./M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP./TYPE/ TIPO | H 10000 MC | | INV-NR./INV-NO/NO-INV | Machine | =M54802 |
| ERS.D./REP.W. | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | Document type | &P pneumatic diagram | |
| | | | | | | | | | | | Mounting position | +ATC tool changer | |
| | | | | | | | | | | | Page name | 1 | |

Device tag list

Heller_Dynam_Bed_2L2C

| device tag | number | denomination | Type | Manufacturer | Heller no. | device tag | number | denomination | Type | Manufacturer | Heller no. |
|-------------|--------|-------------------------|--|-------------------------------|------------|---------------|--------|-------------------------|---|-------------------------------|------------|
| +MU-115.11 | 1 | plastic pipe | PA 10x1 1 820 712 105 | AVENTICS | 01.093306 | +MU-215.3 | 1 | pipe spiral | 4x0,85-3000 PA12W 100034018 | Stiefel | 01.064865 |
| +H1-200.1 | 1 | lubrication unit | MFE5-KW6-S223+1FV 420V, 50Hz, 480V, 60Hz UL/CSA | SKF Lubrication Systems AG | 01.111014 | +MU-215.4 | 1 | pipe spiral | 4x0,85-3000 PA12W 100034018 | Stiefel | 01.064865 |
| +H1-200.1-1 | 1 | pump unit | | SKF Lubrication Systems AG | | +MU-215.5 | 1 | pipe spiral | 4x0,85-3000 PA12W 100034018 | Stiefel | 01.064865 |
| +H1-200.1-2 | 1 | filler plug | B7.06 | SKF Lubrication Systems AG | | +MU-215.6 | 1 | pipe spiral | 4x0,85-3000 PA12W 100034018 | Stiefel | 01.064865 |
| +H1-200.1-3 | 1 | float switch | WS35-S30+C51 (L=165mm) | SKF Lubrication Systems AG | | +MU-215.10 | 1 | pressure switch | PN7094 -1-10bar, G1/4 | IFM Electronic | 01.111724 |
| +H1-200.1-4 | 1 | pressure relief valve | WVN200-8B23 | SKF Lubrication Systems AG | 01.070541 | +H1-215.21 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | |
| +H1-200.2 | 1 | pressure filter | 50LEN0040-H3XLA00-V5,0-M-R3-M-NB R928048246 | Bosch Rexroth | 01.107210 | +H1-215.22 | 1 | pressure switch | PN7092 0-100bar, G1/4 | IFM Electronic | 01.111726 |
| +H1-200.2-1 | 1 | filter element | 2.0040H3XL-A00-0-M R928006645 | Bosch Rexroth | 01.107211 | +MT-241.1 | 1 | vane pump | FLM 12- 4041+1FV 254-280V, 440-480V, 60Hz UL | SKF Lubrication Systems AG | 01.111855 |
| +H1-200.2-2 | 1 | clogging indicator | WE-2SP-M12x1 R928028410 | Bosch Rexroth | 01.106289 | +MT-241.2 | 1 | flow control switch | SBN232 NPT3/4, 0,38-25l/min | IFM Electronic | 01.113743 |
| +H1-200.3 | 1 | check valve | RHD08LOMD-0,5-CF | Parker | 01.067532 | +H1-290.2 | 1 | hose line | S100-CR-CR-.... | Hydrotechnik | |
| +H1-200.4 | 1 | plate | filter element | Heller Maschinenfabrik | 10.500969 | +H1-290.3 | 1 | pressure switch | PN7092 0-100bar, G1/4 | IFM Electronic | 01.111726 |
| +H1-206.1 | 1 | lubrication unit | MFE5-KW6-S223+1FV 420V, 50Hz, 480V, 60Hz UL/CSA | SKF Lubrication Systems AG | 01.111014 | +TM-290.12 | 1 | distributor strip | 325-581 | SKF Lubrication Systems AG | 01.031954 |
| +H1-206.1-1 | 1 | pump unit | | SKF Lubrication Systems AG | | +TM-290.12-2 | 1 | piston-type distributor | 341-400-20000-00 0,03 cm3 | SKF Lubrication Systems AG | 01.005644 |
| +H1-206.1-2 | 1 | filler plug | B7.06 | SKF Lubrication Systems AG | | +TM-290.12-3 | 1 | piston-type distributor | 341-400-20000-00 0,03 cm3 | SKF Lubrication Systems AG | 01.005644 |
| +H1-206.1-3 | 1 | float switch | WS35-S30+C51 (L=165mm) | SKF Lubrication Systems AG | | +TM-290.12-5 | 1 | piston-type distributor | 341-400-20000-00 0,03 cm3 | SKF Lubrication Systems AG | 01.005644 |
| +H1-206.1-4 | 1 | pressure relief valve | WVN200-8B23 | SKF Lubrication Systems AG | 01.070541 | +MUT-290.21 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +H1-206.2 | 1 | pressure filter | 50LEN0040-H3XLA00-V5,0-M-R3-M-NB R928048246 | Bosch Rexroth | 01.107210 | +MUT-290.22 | 1 | distributor strip | 2-fach G1/4 | Heller Maschinenfabrik | 10.500823 |
| +H1-206.2-1 | 1 | filter element | 2.0040H3XL-A00-0-M R928006645 | Bosch Rexroth | 01.107211 | +MUT-290.22-1 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +H1-206.2-2 | 1 | clogging indicator | WE-2SP-M12x1 R928028410 | Bosch Rexroth | 01.106289 | +MUT-290.22-2 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +H1-206.3 | 1 | check valve | RHD08LOMD-0,5-CF | Parker | 01.067532 | +MUT-290.22-3 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +H1-206.4 | 1 | plate | filter element | Heller Maschinenfabrik | 10.500969 | +MUT-290.22-4 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +MU-210.1 | 1 | reservoir | | Heller Maschinenfabrik | | +MUT-290.22-8 | 1 | piston-type distributor | 351-000-50000-00 0,2 cm3 | SKF Lubrication Systems AG | 01.068111 |
| +MU-210.2 | 1 | gear ring pump unit | 143-012-127+564 280/480V, 60Hz, UL/CSA | SKF Lubrication Systems AG | 01.101488 | +MUT-290.23 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +MU-210.3 | 1 | ventilation filter | 41 004 62 222 | Mann + Hummel | 01.061582 | +MUT-290.24 | 1 | distributor strip | 4-fach G1/4 | Heller Maschinenfabrik | 10.500825 |
| +MU-210.5 | 1 | flow control switch | SBU323 G1/2 75l/min | IFM Electronic | 01.111533 | +MUT-290.25 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +MU-210.6 | 1 | hose line | DIN 20066-2SC16-NN-1000-P 462-10-1000 | Parker | 01.101113 | +MUT-290.30 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +MU-215.1 | 1 | piston-type distributor | VOE-B/6/2-3/3/3/3/0/P | Eugen Woerner GmbH & Co.KG | 01.085571 | +MC-290.31 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +MU-215.2 | 1 | pipe spiral | 4x0,85-3000 PA12W 100034018 | Stiefel | 01.064865 | +MC-290.32 | 1 | distributor strip | 4-fach G1/4 | Heller Maschinenfabrik | 10.500825 |

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| | | | | | | | | | | | |
|---|--|---|--|---|--|----------------------|--|--|--|---|--|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO CAD-System | | | | PROJ./PROJ./PROJ. 54802.00 M-NR/M-NO/ M-NO M54802 TYP/TYPE/ TIPO H 10000 MC WERKSTÜCK/ PART/PEÇA | | | | HELLER KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA BENENNUNG/NAME/DENOMINAÇÃO Device tag list lubrication | | PLAN/PLAN/PLANO project MP.05480200_F Machine =M54802 Document type &L lubrication diagram Mounting position Page name 0 | |
| ePLAN 2.2.5 | | URSPR./ORIG. GEPR./CHECK./REG. ERS./REP. BEARB./CHG./ALT. ERS.D./REP.W. | | INDEX ZONE/ZONA DATUM/DATE NAME/NOME 04.04.2017 AHFE/ZAJ 04.04.2017 AHFE/ZAJ | | INV-NR/INV-NO/NO-INV | | | | A3 | |

0.a

Device tag list

Heller_Dynam_Bed_2L2C

| device tag | number | denomination | Type | Manufacturer | Heller no. |
|--------------|--------|-------------------------|--------------------------------|-------------------------------|------------|
| +MC-290.32-1 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +MC-290.32-2 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +MC-290.32-3 | 1 | piston-type distributor | 341-400-20000-00 0,03 cm3 | SKF Lubrication Systems AG | 01.005644 |
| +MC-290.32-4 | 1 | piston-type distributor | 341-400-20000-00 0,03 cm3 | SKF Lubrication Systems AG | 01.005644 |
| +MC-290.32-5 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +MC-290.32-6 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +MC-290.32-8 | 1 | metering unit | 352-020-K 0,2 cm3 | SKF Lubrication Systems AG | 01.008729 |
| +MC-290.33 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +MC-290.34 | 1 | distributor strip | 4-fach G1/4 | Heller Maschinenfabrik | 10.500825 |
| +MC-290.35 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +MC-290.40 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +MT-290.41 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +MT-290.42 | 1 | distributor strip | 2-fach G1/4 | Heller Maschinenfabrik | 10.500823 |
| +MT-290.42-1 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +MT-290.42-3 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +MT-290.42-4 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +MT-290.42-5 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +MT-290.42-6 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +MT-290.43 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +MT-290.44 | 1 | distributor strip | 4-fach G1/4 | Heller Maschinenfabrik | 10.500825 |
| +MT-290.45 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +MT-290.50 | 1 | plastic pipe | PA 8x1,25 WVN 715-RO 8x1,25 | SKF Lubrication Systems AG | 01.099359 |
| +M-290.52 | 1 | distributor strip | 328-581 | SKF Lubrication Systems AG | 01.073896 |
| +M-290.52-1 | 1 | piston-type distributor | 341-400-50000-00 0,16 cm3 | SKF Lubrication Systems AG | 01.005645 |
| +M-290.52-5 | 1 | piston-type distributor | 341-400-20000-00 0,03 cm3 | SKF Lubrication Systems AG | 01.005644 |
| +M-290.52-6 | 1 | piston-type distributor | 341-400-20000-00 0,03 cm3 | SKF Lubrication Systems AG | 01.005644 |
| +M-290.52-7 | 1 | piston-type distributor | 341-400-20000-00 0,03 cm3 | SKF Lubrication Systems AG | 01.005644 |
| +M-290.52-8 | 1 | piston-type distributor | 341-400-20000-00 0,03 cm3 | SKF Lubrication Systems AG | 01.005644 |

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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | <h1>HELLER</h1> | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPER/ TIPO | H 10000 MC | | | Machine | =M54802 |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 04.04.2017 | AHFE/ZAJ | BENENNUNG/NAME/DENOMINAÇÃO | | Device tag list lubrication | INV-NR/INV-NO/NO-INV | Document type | &L lubrication diagram |
| | | | | | | | | | | | Mounting position | | |
| | | | | | | | | | | | Page name | 0.a | A3 |

Lubrication points

Schmierformular_Dyn

| lubrication point | | metering |
|--------------------------|-------------------------------------|-----------|
| LP1 | machine bed tool changer | |
| LP5 | machine bed Counter bearing, table | 0,03 cm3 |
| LP6 | machine bed Table, spindle bearing | 0,03 cm3 |
| LP7 | machine bed Counter bearing, column | 0,03 cm3 |
| LP8 | machine bed Column, spindle bearing | 0,03 cm3 |
| LP101 | Table spindle nut | 0,16 cm3 |
| LP203 | column counter bearing | 0,03 cm3 |
| LP204 | column spindle bearing | 0,03 cm3 |
| LP210 | column spindle nut | 0,2 cm3 |
| LP308 | Spindle unit spindle nut | 0,2 cm3 |
| LP331 | spindle Front bearing | 0,034 cm3 |
| LP332 | spindle Front bearing | 0,034 cm3 |
| LP333 | spindle Rear bearing | 0,034 cm3 |
| LP334 | motor Rear hollow shaft bearing | 0,034 cm3 |
| LP335 | motor Rear hollow shaft bearing | 0,034 cm3 |
| LP502 | tool magazine chain | 0,03 cm3 |
| LP503 | tool magazine chain | 0,03 cm3 |
| LP505 | tool magazine guide frame down | 0,03 cm3 |
| total quantity per pulse | | 1,00 cm3 |

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|---|--|---------------|-------------------|------------|-----------|----------------------|---|-------------------|------------------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | <div style="text-align: center; font-weight: bold; font-size: 1.2em;">HELLER</div> KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA | PLAN/PLAN/PLANO | |
| CAD-System | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | | project | |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | M54802 | BENENNUNG/NAME/DENOMINAÇÃO lubricant table | MP.05480200_F | |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 04.04.2017 | AHFE/ZAJ | H 10000 MC | | Machine | =M54802 |
| | | | | | | | INV-NR/INV-NO/NO-INV | Document type | &L lubrication diagram |
| | | | | | | | | Mounting position | |
| | | | | | | | | Page name | 1 |

Lubrication points

Schmierformular_Dyn

| lubrication point | | metering |
|--------------------------|--------------------------------------|----------|
| LP103 | Table roller for runner block | 0,16 cm3 |
| LP104 | Table roller for runner block | 0,16 cm3 |
| LP105 | Table roller for runner block | 0,16 cm3 |
| LP106 | Table roller for runner block | 0,16 cm3 |
| LP201 | column roller for runner block | 0,16 cm3 |
| LP202 | column roller for runner block | 0,16 cm3 |
| LP205 | column roller for runner block | 0,16 cm3 |
| LP206 | column roller for runner block | 0,16 cm3 |
| LP301 | Spindle unit roller for runner block | 0,16 cm3 |
| LP302 | Spindle unit roller for runner block | 0,16 cm3 |
| LP303 | Spindle unit roller for runner block | 0,16 cm3 |
| LP304 | Spindle unit roller for runner block | 0,16 cm3 |
| total quantity per pulse | | 1,92 cm3 |

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+H1/1 →

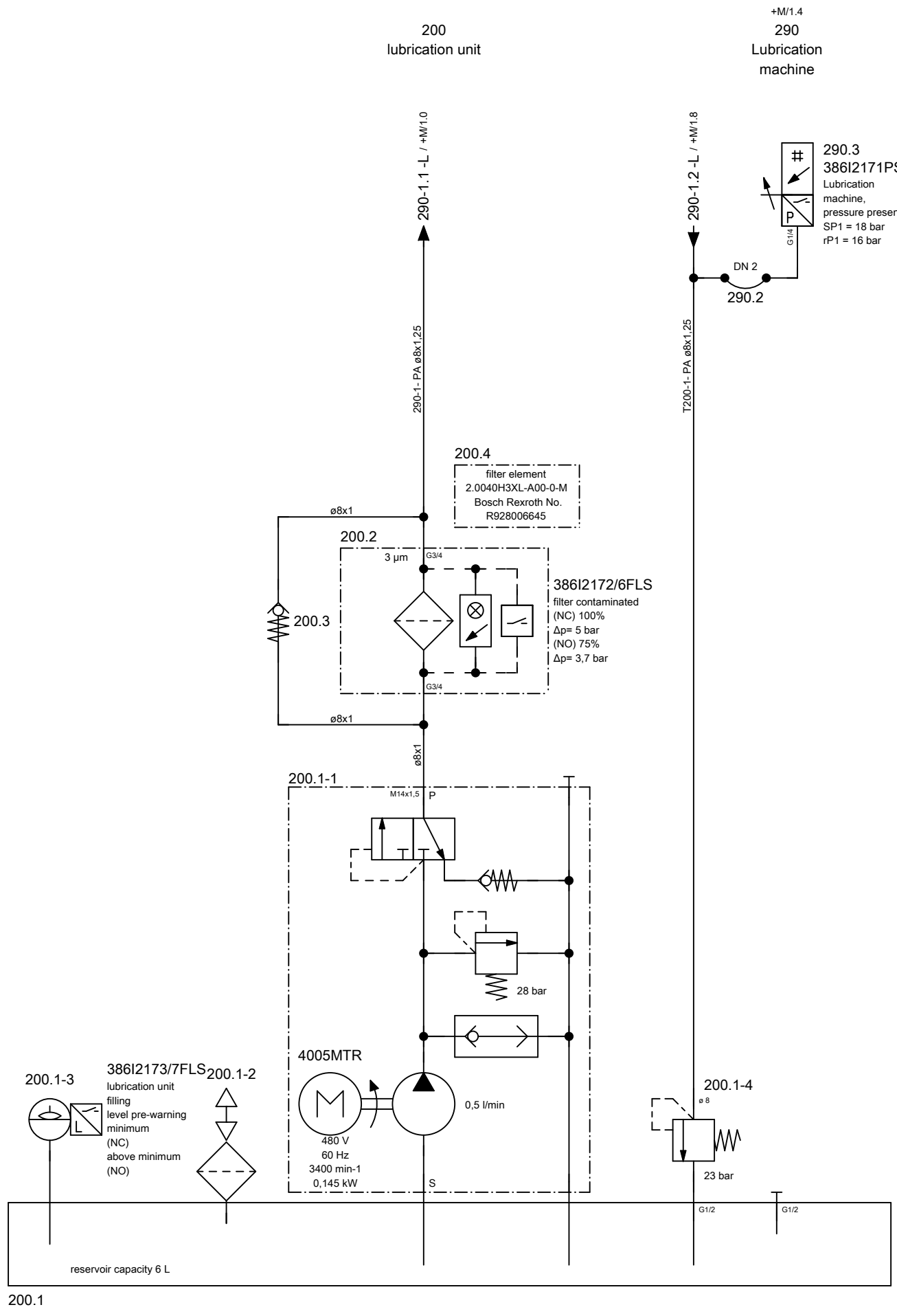
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|---|--|---------------|-------------------|------------|-----------|----------------------|--|------------------------|------------------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | <div style="text-align: center; font-weight: bold; font-size: 1.2em;">HELLER</div> | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO |
| CAD-System | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | | Paccar, Columbus USA | project |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | M54802 | BENENNUNG/NAME/DENOMINAÇÃO lubricant table 2 | INV-NR/INV-NO/NO-INV | MP.05480200_F |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 04.04.2017 | AHFE/ZAJ | H 10000 MC | | | Machine |
| | | | | | | | | Document type | &L lubrication diagram |
| | | | | | | | | Mounting position | |
| | | | | | | | | Page name | 2 |
| | | | | | | | | | |

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Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanized, chromium6-free
 Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
 Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form
 SKF WVN 715-RO PA plastic pipes, PA12 HIPHL and double tapered ring duct unions

reservoir capacity 6 L
 process medium lubrication oil ISO-L-CKC 68 acc. to ISO 6743-6 and ISO 3448

lubrication interval 10 min



| | | | | | | | | | |
|---|--|---|---|--|--|---|--|---|--|
| PROJ./PROJ./PROJ. 54802.00 M-NR/M-NO/M-NO M54802 TYP/TYPER/ TIPO H 10000 MC WERKSTÜCK/ PART/PEÇA | | | | HELLER BENENNUNG/NAME/DENOMINAÇÃO lubrication diagram | | KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA INV-NR/INV-NO/NO-INV 13.503922 | | PLAN/PLAN/PLANO project MP.05480200_F Machine =M54802 Document type &L lubrication diagram Mounting position +H1 HELP1 Page name 1 | |
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO CAD-System ePLAN 2.2.5 | | Index GEPR./CHECK./REG. BEARB./CHG./ALT. GEZ./DRAWN/DES. | ZONE/ZONA DATUM/DATE 04.04.2017 14.03.2016 | NAME/NOME AHFE/ZAJ AHFE/HOP | | | | | |

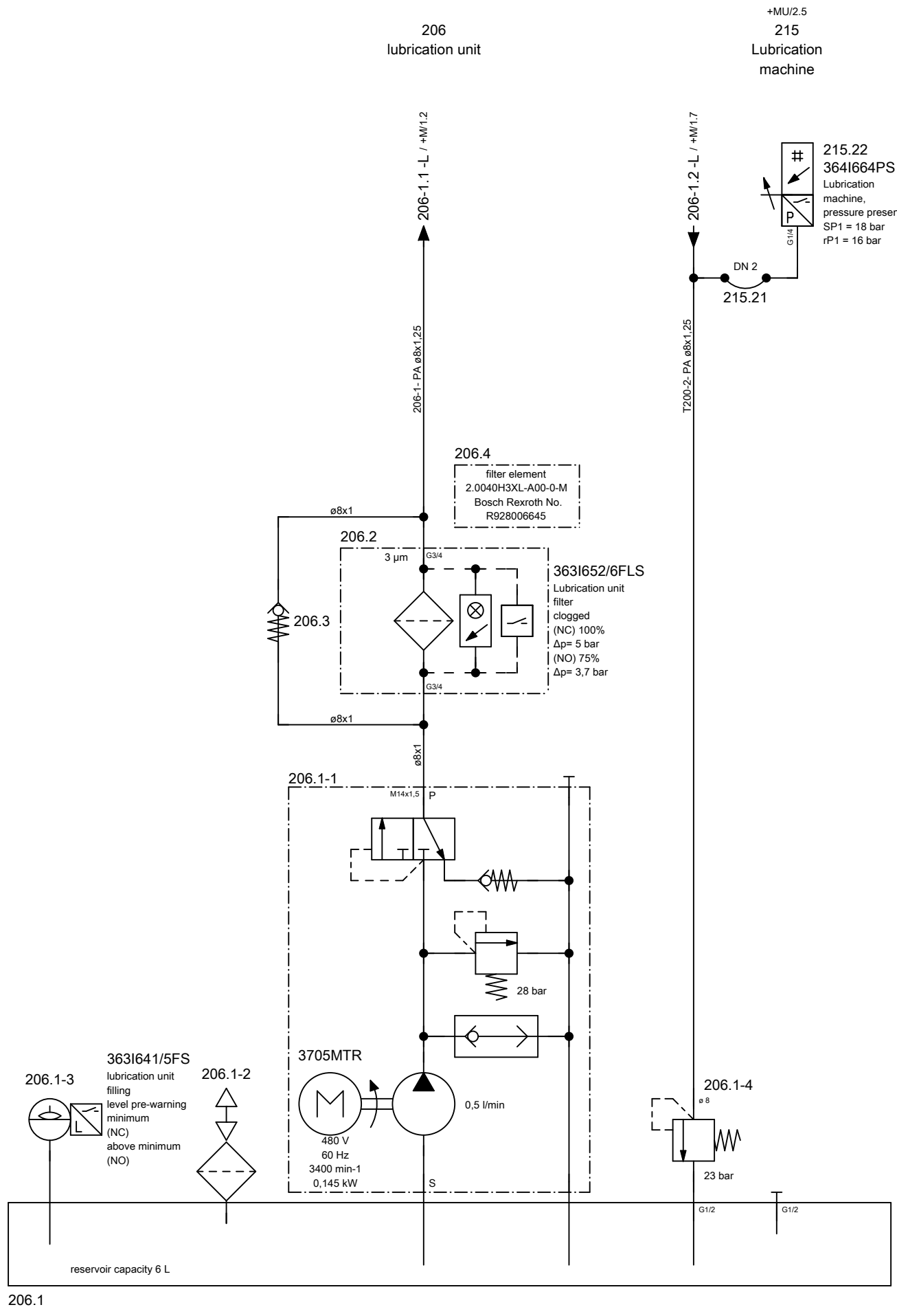
Heller_2L

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Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
 Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
 Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form
 SKF WVN 715-RO PA plastic pipes, PA12 HIPHL and double tapered ring duct unions

reservoir capacity 6 L
 process medium lubrication oil ISO-L-CKC 68 acc. to ISO 6743-6 and ISO 3448

lubrication interval 10 min



← 1

→ +MT/1

| | | | | | |
|---|---------------|-------------------|------------|------------|-----------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME |
| CAD-System ePLAN 2.2.5 | URSPR./ORIG. | GEPR./CHECK./REG. | | | |
| | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | |
| | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | |

| | |
|---------------------|------------|
| PROJ./PROJ./PROJ. | 54802.00 |
| M-NR/M-NO/M-NO | M54802 |
| TYP/TYPE/TIPO | H 10000 MC |
| WERKSTÜCK/PART/PEÇA | |

HELLER

lubrication diagram

| | |
|------------------------|----------------------|
| KUNDE/CUSTOMER/CLIENTE | Paccar, Columbus USA |
| INV-NR/INV-NO/NO-INV | 13.503922 |

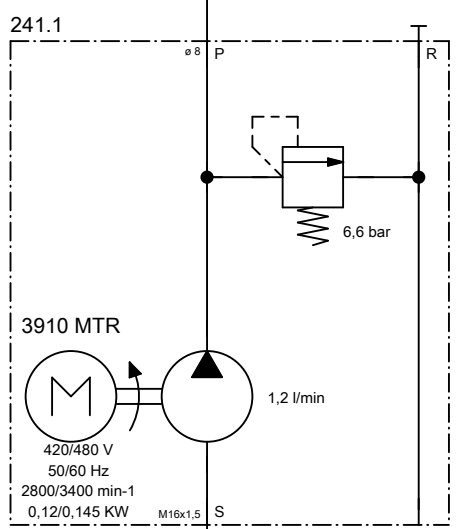
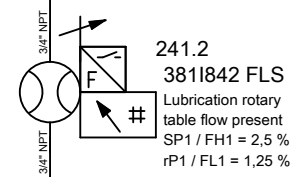
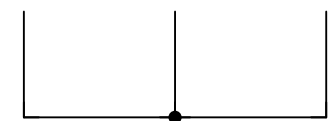
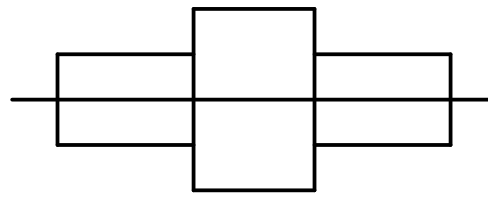
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| PLAN/PLAN/PLANO | project | MP.05480200_F |
| Machine | | =M54802 |
| Document type | &L | lubrication diagram |
| Mounting position | +H1 | HELP1 |
| Page name | 2 | |

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Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form
SKF WVN 715-RO PA plastic pipes, PA12 HIPHL and double tapered ring duct unions

241 rotary feed table



H 10000-14000
reservoir capacity 17 L
process medium lubrication oil SAE 80W
acc. to SAE J 306 and ISO 51512

← +H1/2

+MU/1 →

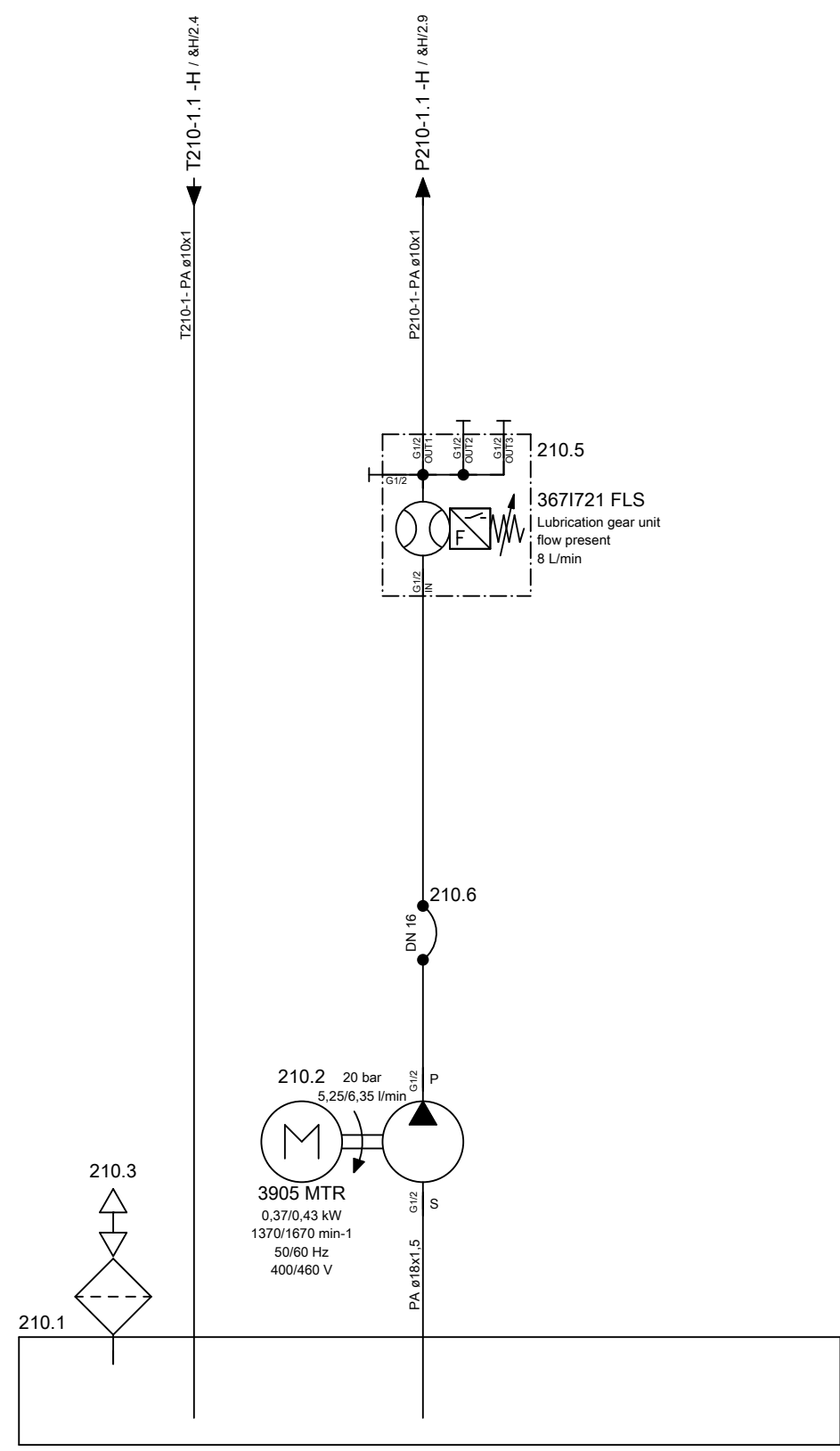
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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | | |
| CAD-System | | | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F | |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | lubrication diagram | INV-NR/INV-NO/NO-INV | Machine | =M54802 | |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | Document type | &L | lubrication diagram | |
| | | | | | | | | | | Mounting position | +MT | table | Page name | 1 |

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reservoir capacity 5 L
process medium lubrication oil ISO-L-CKC 46
acc. to ISO 6743-6 and ISO 3448

gear lubrication
210



← +MT/1

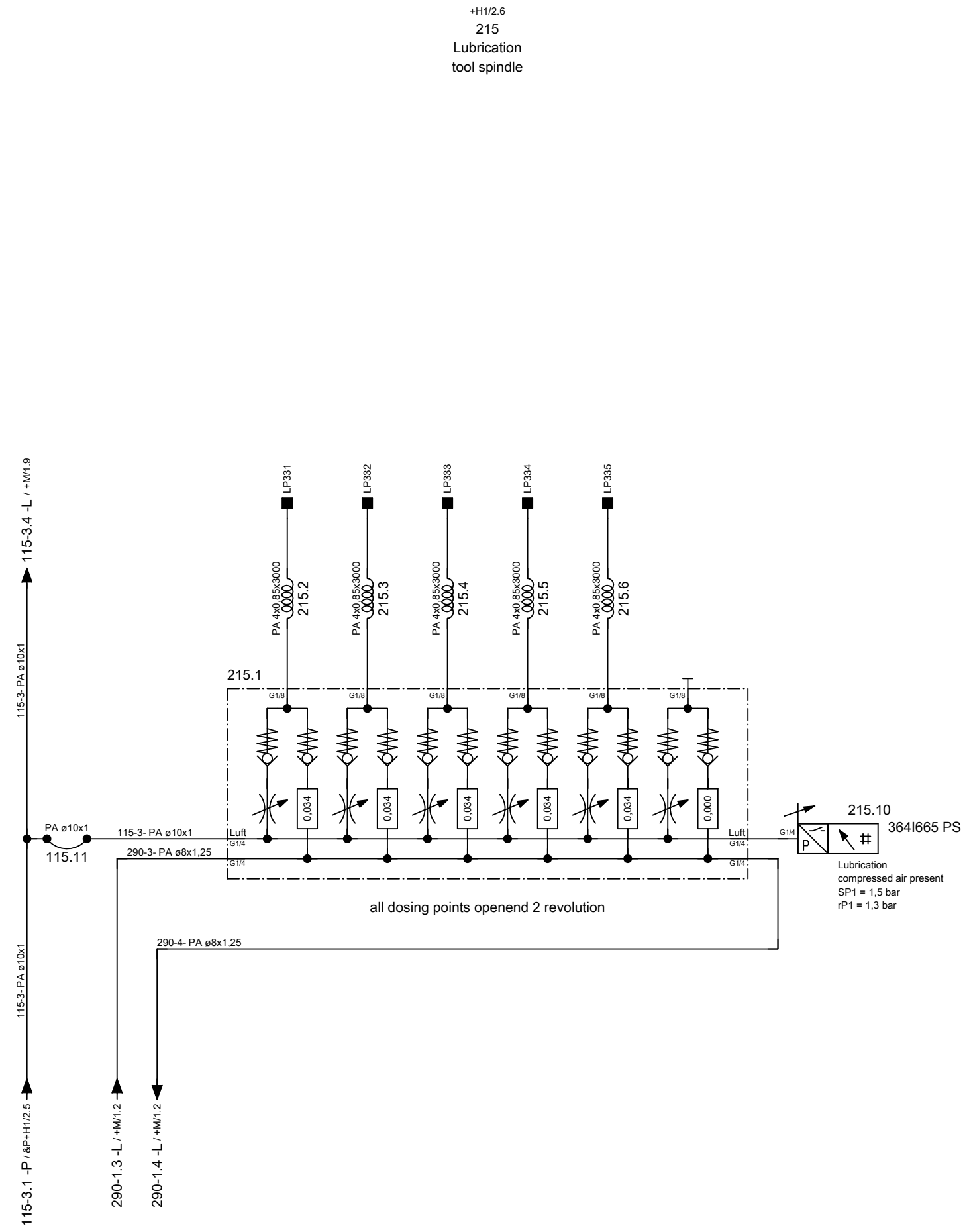
2 →

Heller_2L

| | | | | | | | | | | | | | |
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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR./M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | lubrication diagram | INV-NR./INV-NO/NO-INV | Machine | =M54802 |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | | Document type | &L |
| | | | | | | | | | | | Mounting position | +MU | unit |
| | | | | | | | | | | | Page name | 1 | |

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← 1

+M/1 →

| | | | | | | | | | | | |
|---|--|---------------|-------------------|------------|-----------|-------------------------|------------|---------------------|------------------------|-----------------|---------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ./PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR./M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP./TYPE/ TIPO | H 10000 MC | lubrication diagram | INV-NR./INV-NO/NO-INV | Machine | =M54802 |
| Heller_2L | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | | Document type | &L |
| | | | | | | | | | Mounting position | +MU | unit |
| | | | | | | | | | Page name | 2 | |

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+H1/1.6
290
Lubrication
machine

+MC
column

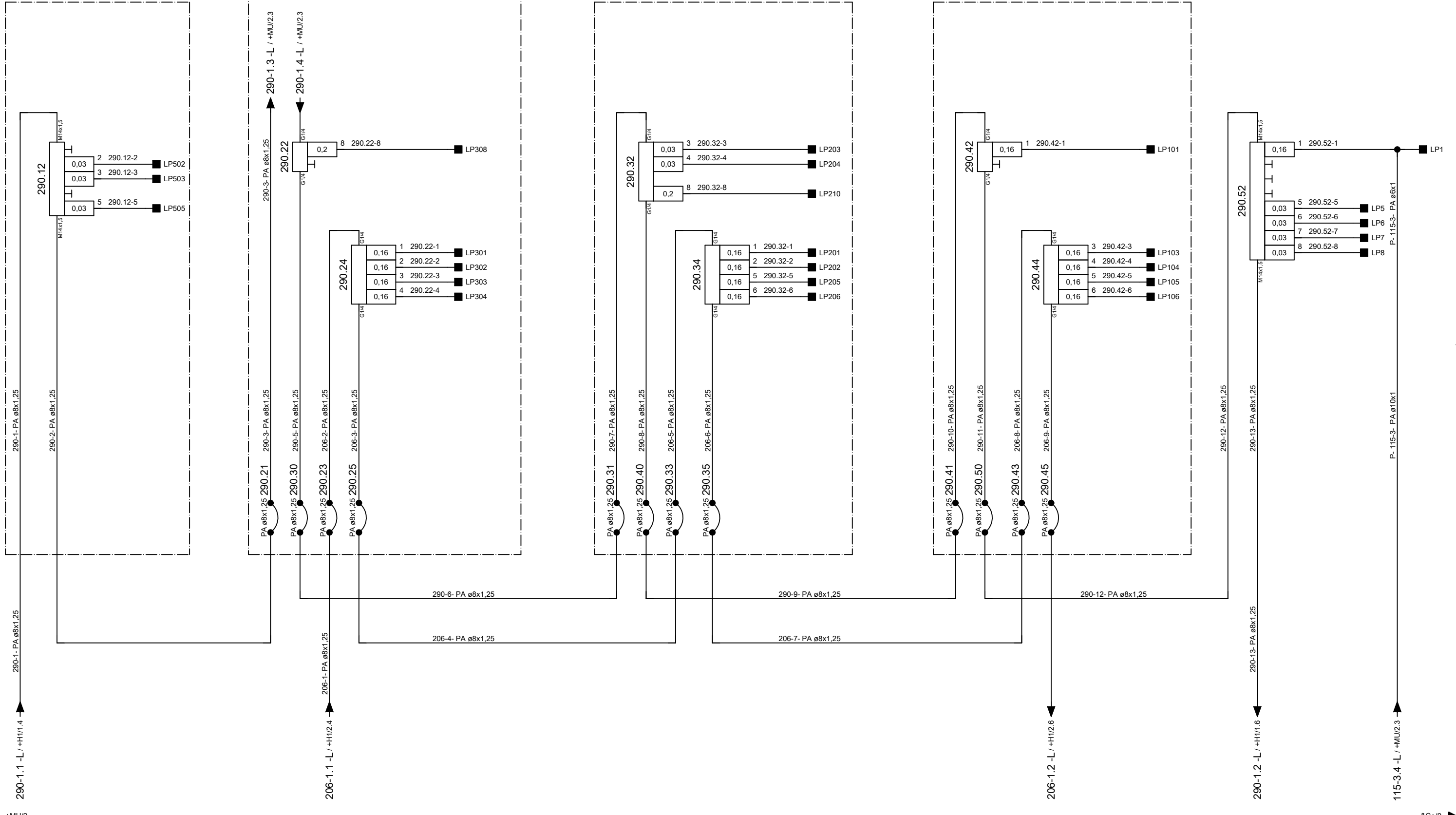
+MT
table

machine bed

machine bed

+TM
tool magazine

+MUT
machine table swivel axis



| | | | | | | | | | | |
|---|--|---------------|-------------------|------------|-----------|-------------------------|------------|---------------------|------------------------|-----------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ./PROJ. | 45802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO |
| CAD-System | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | lubrication diagram | Machine | =M54802 |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | INV-NR/INV-NO/NO-INV | Document type |
| | | | | | | | | | Mounting position | +M machine |
| | | | | | | | | | Page name | 1 |

Heller_2L

A3

Device tag list

Heller_Dynam_Bed_2L2C

| device tag | number | denomination | Type | Manufacturer | Heller no. |
|------------|--------|---------------------------|--|------------------------|------------|
| +H1-300.1 | 1 | cooling unit | ERK10W-PWT-R134a Heller-UL 400V 50Hz, 460V 60Hz 5,2kW | BKW | 01.112899 |
| +EC-300.2 | 1 | control cabinet cooling | | | |
| +EC-300.3 | 1 | control cabinet cooling | | | |
| +MC-300.5 | 1 | adapter flange | | Heller Maschinenfabrik | |
| +H1-300.6 | 1 | ball valve | 75-104-01-01 3/4" NPT | Apollo | 01.113288 |
| +H1-300.7 | 1 | ball valve | 75-104-01-01 3/4" NPT | Apollo | 01.113288 |
| +MC-300.9 | 1 | control valve | 223.1209.000 DN15 3-12 l/min | Taconova | 01.100682 |
| +MU-300.20 | 1 | plastic pipe | PA 12x1,5 1 820 712 103 | AVENTICS | 01.093304 |
| +MU-300.21 | 1 | plastic pipe | PA 12x1,5 1 820 712 103 | AVENTICS | 01.093304 |
| +MC-300.30 | 1 | hose line | DIN 20066-2SC 10 -NN-2350-P 462-6-2350 | Parker | 01.104632 |
| +MC-300.31 | 1 | hose line | DIN 20066-2SC 10 -NN-2350-P 462-6-2350 | Parker | 01.104632 |
| +MU-310.1 | 1 | directional control valve | SGH130A-30G10Y-5WZ G3/8 30bar M12x1 | SMC | 01.102730 |
| +MU-310.2 | 1 | plastic pipe | PA 8x1 1 820 712 102 | AVENTICS | 01.093303 |
| | 1 | check valve | RHD12LOMD-CF | Parker | 01.002260 |

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← &L+M/1

+H1/1 →

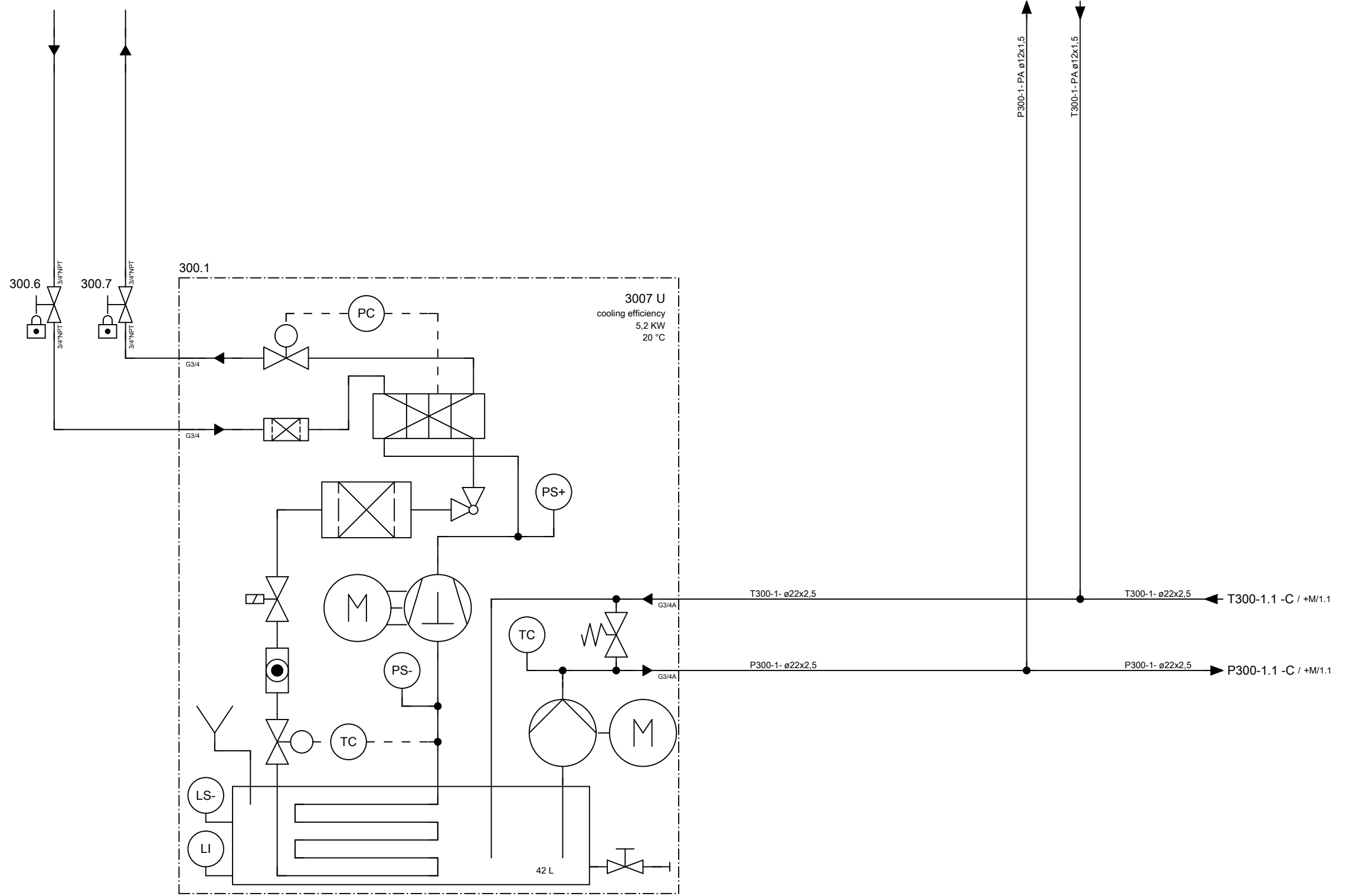
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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ. PROJ. | <div style="text-align: center; font-weight: bold; font-size: 1.2em;">HELLER</div> KUNDE/CUSTOMER/CLIENTE Paccar, Columbus USA | PLAN/PLAN/PLANO | |
| CAD-System | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | | project | |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | M54802 | Machine | | |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 04.04.2017 | AHFE/ZAJ | H 10000 MC | =M54802 | | |
| | | | | | | BENENNUNG/NAME/DENOMINAÇÃO | | INV-NR/INV-NO/NO-INV | |
| | | | | | | Device tag list cooling water | | Document type &C cooling water diagram | |
| | | | | | | | | Mounting position | |
| | | | | | | | | Page name 0 | |
| | | | | | | | | A3 | |

+M/1.5
300
machine cooling system

Seamless precision steel pipe acc. to DIN ISO 10763 E235+N, galvanised, chromium6-free
Parker screw connections, type EO-2 Plus, chromium6-free, male stud connector with soft seal acc. to ISO 1179-2 type E
Parker 2SC-462 hose acc. to ISO 11237-1 EN 857, hose fitting acc. to DIN ISO 12151-2, CA form

reservoir capacity 42 L
process medium Demineralised water with anti-corrosion agent
mixing ratio see plates on cooling unit

cooling water provided by customer
max. 35°C



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← +/0 +MU/1 →

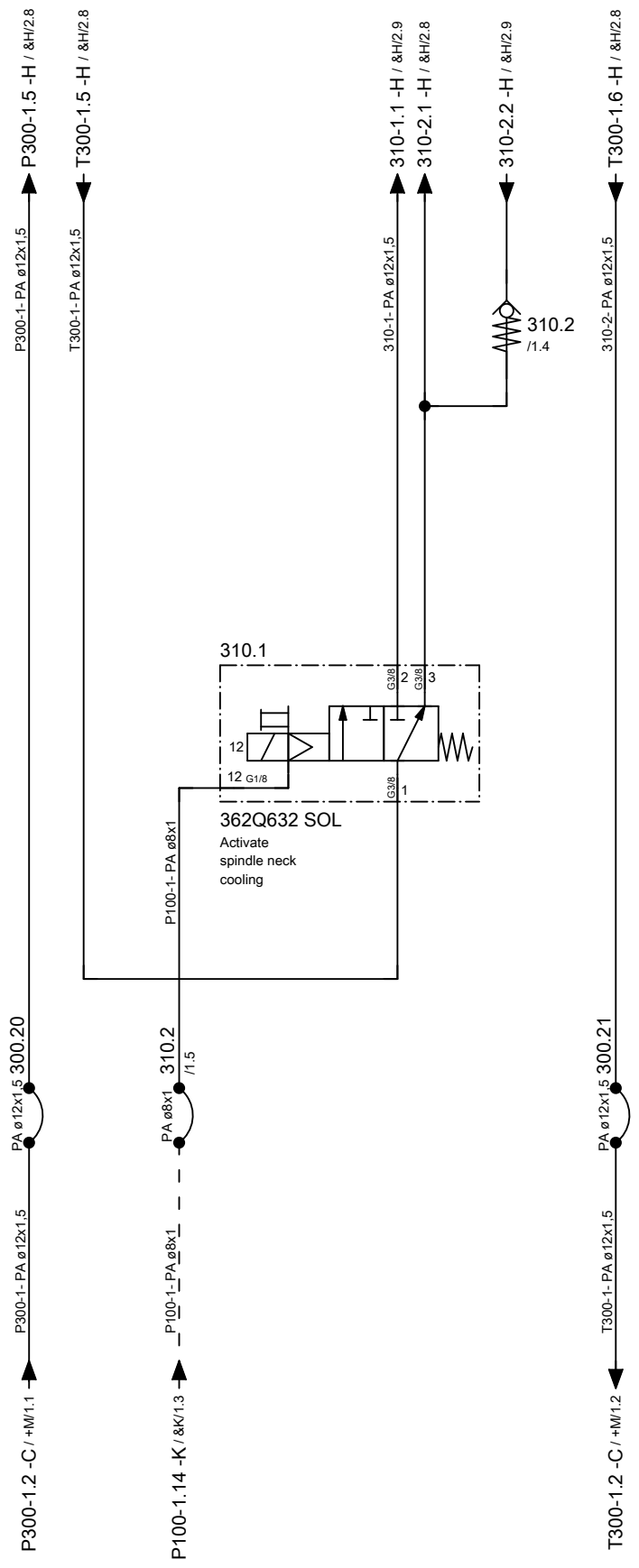
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| | | | | M-NR/M-NO/ M-NO M54802 | | BENENNUNG/NAME/DENOMINAÇÃO cooling water diagram | INV-NR/INV-NO/NO-INV 01.106964 | Machine =M54802 |
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | Document type &C cooling water diagram |
| CAD-System ePLAN 2.2.5 | URSPR./ORIG. | GEPR./CHECK./REG. | | | | | | Mounting position +H1 HELP1 |
| | ERS./REP. | BEARB./CHG./ALT. | | 04.04.2017 | AHFE/ZAJ | | | Page name 1 |
| | ERS.D./REP.W. | GEZ./DRAWN/DES. | | 14.03.2016 | AHFE/HOP | | | |
| | | | | PROJ./PROJ./PROJ. 54802.00 | | | | |
| | | | | M-NR/M-NO/ M-NO M54802 | | | | |
| | | | | TYP./TYPE/ TIPO H 10000 MC | | | | |
| | | | | WERKSTÜCK/ PART/PEÇA | | | | |

Heller_2L

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310
Spindle
neck cooling



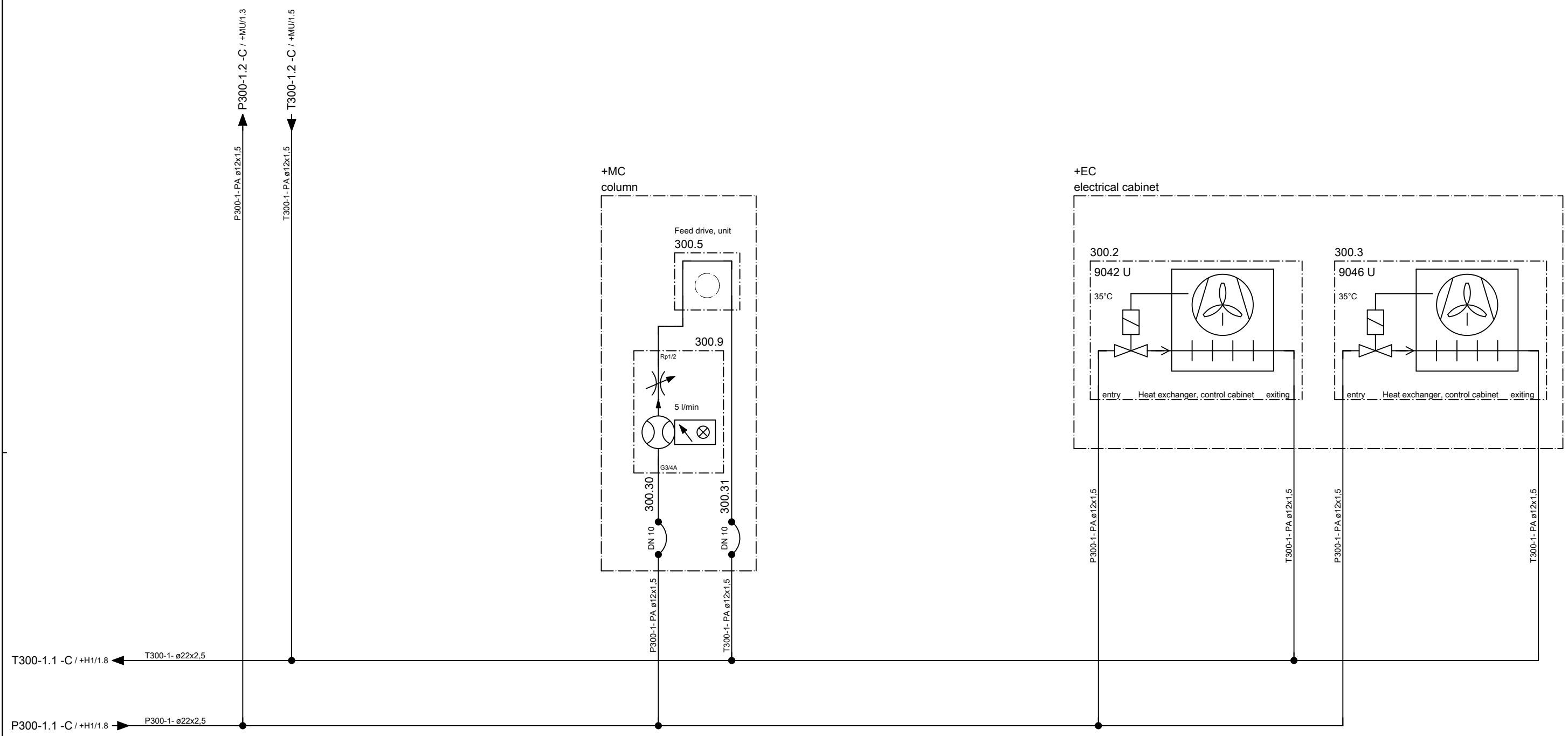
← +H1/1 +M/1 →

| | | | | | | | | | | |
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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ./PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO |
| CAD-System | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 14.07.2016 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | cooling water diagram | Machine | =M54802 |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | INV-NR/INV-NO/NO-INV | Document type |
| | | | | | | | | | Mounting position | +MU unit |
| | | | | | | | | | Page name | 1 |

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+H1/1.4
300
machine cooling system



← +MU/1

&K+0 →

| | | | | | | | | | | | | | |
|---|--|--|--|---------------|-------------------|------------|-----------|-------------------------|------------|-----------------------|------------------------|-----------------|---------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ. PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | cooling water diagram | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | | Document type | &C |
| | | | | | | | | | | | Mounting position | +M | machine |
| | | | | | | | | | | | Page name | 1 | |

Heller_2L

Device tag list

Heller_Dynam_Bed_2L2C

| device tag | number | denomination | Type | Manufacturer | Heller no. | device tag | number | denomination | Type | Manufacturer | Heller no. |
|--------------|--------|---------------------------|--|------------------------|------------|-------------|--------|---------------------------|--|--------------|------------|
| +CC-100.50 | 1 | shut-off valve | HE-G1/2-LO 197134 | Festo | 01.093008 | +H1-411.1-2 | 1 | directional control valve | G1/8 4-Pin M12x1 401 130 | Müller co-ax | 01.102683 |
| +CC-100.51 | 1 | silencer | AMTE-M-LH-G1 1205865 | Festo | 01.112166 | +H1-411.1-3 | 1 | exhaust throttle | G1/8 238 04 | Müller co-ax | 01.097318 |
| +CC-100.52 | 1 | fastening angle | MS4-WP 532184 | Festo | 01.106320 | +H1-411.1-4 | 1 | exhaust throttle | G1/8 238 04 | Müller co-ax | 01.097318 |
| +CC-100.53 | 1 | filter pressure regulator | MS4-LFR-1/4-D6-CUV-A4 526489 | Festo | 01.109895 | +MU-411.10 | 1 | plastic pipe | 18x1,5 PA12 HIPHL-nf DIN 73378 | Stiefel | 01.060217 |
| +CC-100.53-1 | 1 | filter element | MS4-LFP-C 534501 | Festo | 01.109899 | +H1-411.11 | 1 | hose line | DIN 20066-2SC25-NN-....-P 462-16-.... | Parker | |
| +CC-100.54 | 1 | pressure gauge | MA-50-10-1/4 359873 | Festo | 01.092062 | +H1-417.11 | 1 | hose line | DIN 20066-2SC16-NN-....-P 462-10-.... | Parker | |
| +MU-100.60 | 1 | plastic pipe | PA 8x1 1 820 712 102 | AVENTICS | 01.093303 | +H1-440.1 | 1 | directional control valve | 5-VMK25 NC 2/2 G11/4 0-64bar, M12x1 | Müller co-ax | 02.001243 |
| +MU-110.10 | 1 | plastic pipe | PA 12x1,5 1 820 712 103 | AVENTICS | 01.093304 | +H1-440.1-1 | 1 | directional control valve | VMK 25 NC-Namur 0-64bar, G11/4 | Müller co-ax | 01.094865 |
| +MU-110.11 | 1 | check valve | NG6 G1/4 0 821 003 002 | AVENTICS | 01.031611 | +H1-440.1-2 | 1 | directional control valve | G1/8 4-Pin M12x1 401 130 | Müller co-ax | 01.102683 |
| +MU-110.12 | 1 | vacuum generator | ähnl EBP-240 R412007716 | AVENTICS | 01.100344 | +H1-440.1-3 | 1 | exhaust throttle | G1/8 238 04 | Müller co-ax | 01.097318 |
| +MU-110.13 | 1 | plastic pipe | PA 14x1,5 1 820 712 104 | AVENTICS | 01.093305 | +H1-440.1-4 | 1 | exhaust throttle | G1/8 238 04 | Müller co-ax | 01.097318 |
| +MU-110.20 | 1 | plastic pipe | PA 12x1,5 1 820 712 103 | AVENTICS | 01.093304 | +H1-480.1 | 1 | directional control valve | 5-VMK25 NC 2/2 G11/4 0-64bar, M12x1 | Müller co-ax | 02.001243 |
| +MU-110.21 | 1 | check valve | RHZ12LREDO MD-CF ITL71 ST 1.4571 | Parker | 01.062111 | +H1-480.1-1 | 1 | directional control valve | VMK 25 NC-Namur 0-64bar, G11/4 | Müller co-ax | 01.094865 |
| +H1-400.11 | 1 | hose line | DIN 20066-2SC40-NN-....-P 462-40-.... | Parker | | +H1-480.1-2 | 1 | directional control valve | G1/8 4-Pin M12x1 401 130 | Müller co-ax | 01.102683 |
| +H1-410.1 | 1 | flow control switch | SBU323 G1/2 75l/min | IFM Electronic | 01.111533 | +H1-480.1-3 | 1 | exhaust throttle | G1/8 238 04 | Müller co-ax | 01.097318 |
| +MU-410.2 | 1 | hose line | DIN 20066-2SC16-NN-3750-P 462-10-3750 | Parker | 01.099742 | +H1-480.1-4 | 1 | exhaust throttle | G1/8 238 04 | Müller co-ax | 01.097318 |
| +MU-410.3 | 1 | check valve | RHZ18LREDO MD-CF ITL71 ST 1.4571 | Parker | 01.062112 | +GOS-485.1 | 1 | ball valve | BVG 4-3/4 C | Parker | 01.084621 |
| +MU-410.4 | 1 | block | | Heller Maschinenfabrik | 00.788814 | +GOS-485.2 | 1 | ball valve | BVG 4-3/4 C | Parker | 01.084621 |
| +MU-410.5 | 1 | hose line | DIN 20066-2SC10-NN- 630-P 462- 6- 630 | Parker | 01.099880 | +GOS-485.3 | 1 | ball valve | BVG 4-3/4 C | Parker | 01.084621 |
| +MU-410.6 | 1 | hose line | DIN 20066-2SC10-NN- 630-P 462- 6- 630 | Parker | 01.099880 | +GOS-485.4 | 1 | ball valve | BVG 4-3/4 C | Parker | 01.084621 |
| +MU-410.8 | 1 | directional control valve | 5-VMK10 DR/NO 3/2 G1/2 0-80bar, M12x1 | Müller co-ax | 02.001914 | +GOS-485.5 | 1 | ball valve | BVG 4-3/4 C | Parker | 01.084621 |
| +MU-410.8-1 | 1 | directional control valve | VMK 10 DR NO-Namur 0-80bar, G1/2 | Müller co-ax | 01.102636 | +GMS-485.6 | 1 | ball valve | BVG 4-3/4 C | Parker | 01.084621 |
| +MU-410.8-2 | 1 | directional control valve | G1/8 4-Pin M12x1 401 130 | Müller co-ax | 01.102683 | +GMS-485.7 | 1 | ball valve | BVG 4-3/4 C | Parker | 01.084621 |
| +MU-410.8-3 | 1 | exhaust throttle | G1/8 238 04 | Müller co-ax | 01.097318 | +GMS-485.8 | 1 | ball valve | BVG 4-3/4 C | Parker | 01.084621 |
| +MU-410.8-4 | 1 | exhaust throttle | G1/8 238 04 | Müller co-ax | 01.097318 | +GLS-490.1 | 1 | coiled hose | HEL 09.03.30 DN12 2xG3/8a L=3300 blau | Stäubli | 01.100442 |
| +H1-410.11 | 1 | hose line | DIN 20066-2SC16-NN-....-P 462-10-.... | Parker | | +GLS-490.2 | 1 | wash gun | proficlean G1/2 Düse d=4mm 412.003 + 412-30 | EWO | 01.107273 |
| +H1-411.1 | 1 | directional control valve | 5-VMK15 NC 2/2 G1/2 0-64bar, M12x1 | Müller co-ax | 02.001242 | +H1-490.3 | 1 | coupling | LW13 RBE 06.7813-IA | Stäubli | 01.093166 |
| +H1-411.1-1 | 1 | directional control valve | VMK15NC, 2/2, 0-64bar G1/2 | Müller co-ax | 01.097317 | +H1-490.4 | 1 | coupling | G1/2 RBE 06.1153-IA | Stäubli | 01.086801 |

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| | | | |
|---|--|----------------------------|--|
| ← &C+M/1 | | 0.a → | |
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | PROJ./PROJ./PROJ. 54802.00 | |
| CAD-System | | M-NR/M-NO/ M-NO M54802 | |
| ePLAN 2.2.5 | | TYP/TYPE/ TIPO H 10000 MC | |
| URSPPR./ORIG. | | BENENNUNG/NAME/DENOMINAÇÃO | |
| ERS./REP. | | KUNDE/CUSTOMER/CLIENTE | |
| ERS.D./REP.W. | | Paccar, Columbus USA | |
| GEPR./CHECK./REG. | | PLAN/PLAN/PLANO | |
| BEARB./CHG./ALT. | | project | |
| GEZ./DRAWN/DES. | | Machine | |
| 04.04.2017 AHFE/ZAJ | | MP.05480200_F | |
| 04.04.2017 AHFE/ZAJ | | =M54802 | |
| WERKSTÜCK/ PART/PEÇA | | Document type | |
| | | &K coolant diagram | |
| | | Mounting position | |
| | | Page name | |
| | | 0 | |
| | | A3 | |

Device tag list

Heller_Dynam_Bed_2L2C

| device tag | number | denomination | Type | Manufacturer | Heller no. |
|------------|--------|--------------|-------------|--------------|------------|
| +H1-490.5 | 1 | ball valve | BVG 4-3/8 L | Parker | 01.094579 |

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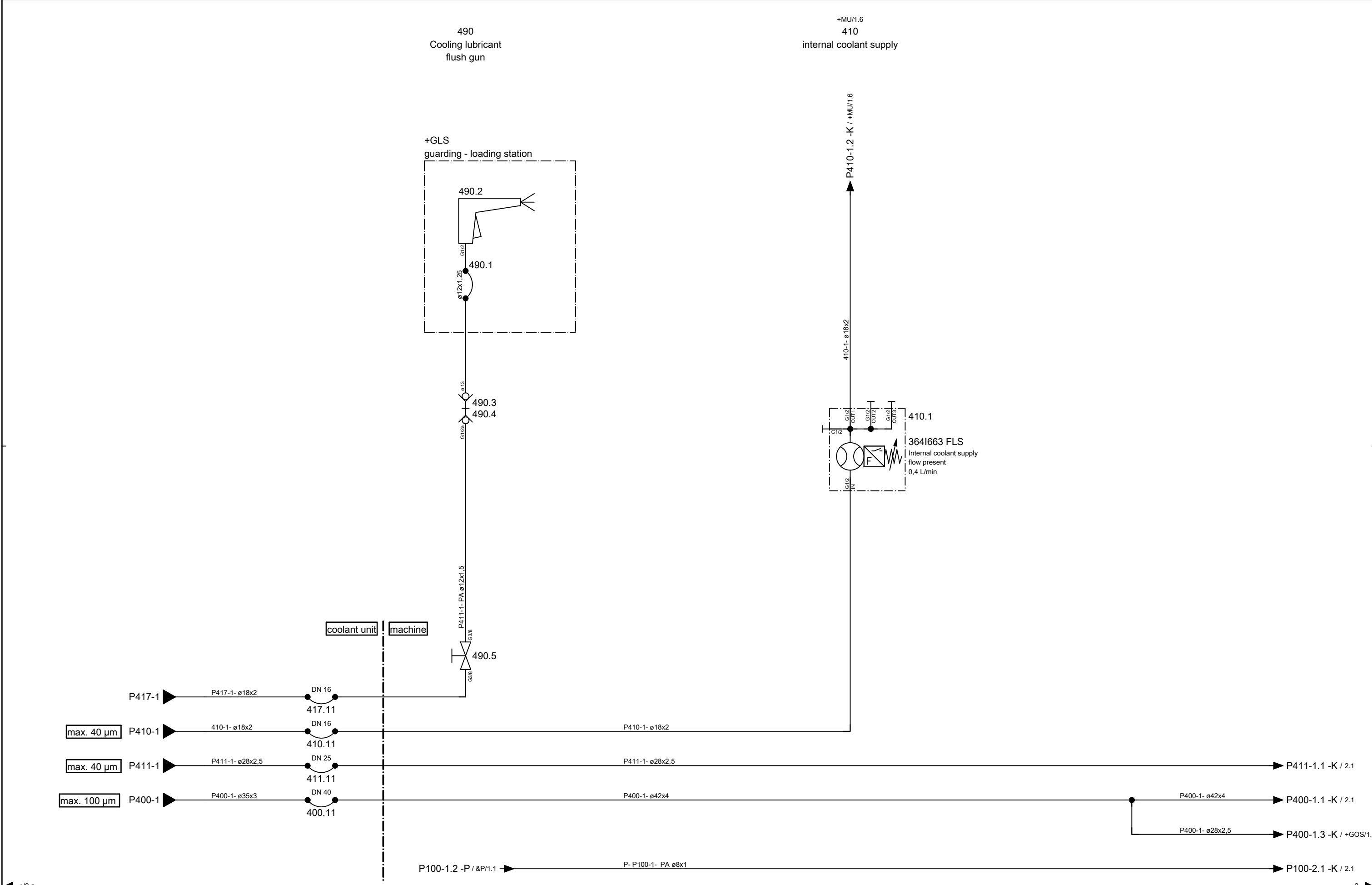
← 0

+H1/1 →

| | | | | | | | | | |
|---|--|---------------|-------------------|------------|-----------|-------------------------|---|------------------------|--------------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | HELLER Paccar, Columbus USA | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO |
| CAD-System | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | | INV-NR/INV-NO/NO-INV | project |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | H 10000 MC | BENENNUNG/NAME/DENOMINAÇÃO Device tag list coolant | Document type | &K coolant diagram |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 04.04.2017 | AHFE/ZAJ | WERKSTÜCK/ PART/PEÇA | | Mounting position | 0.a |

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Atenção! Atenção DIN 34



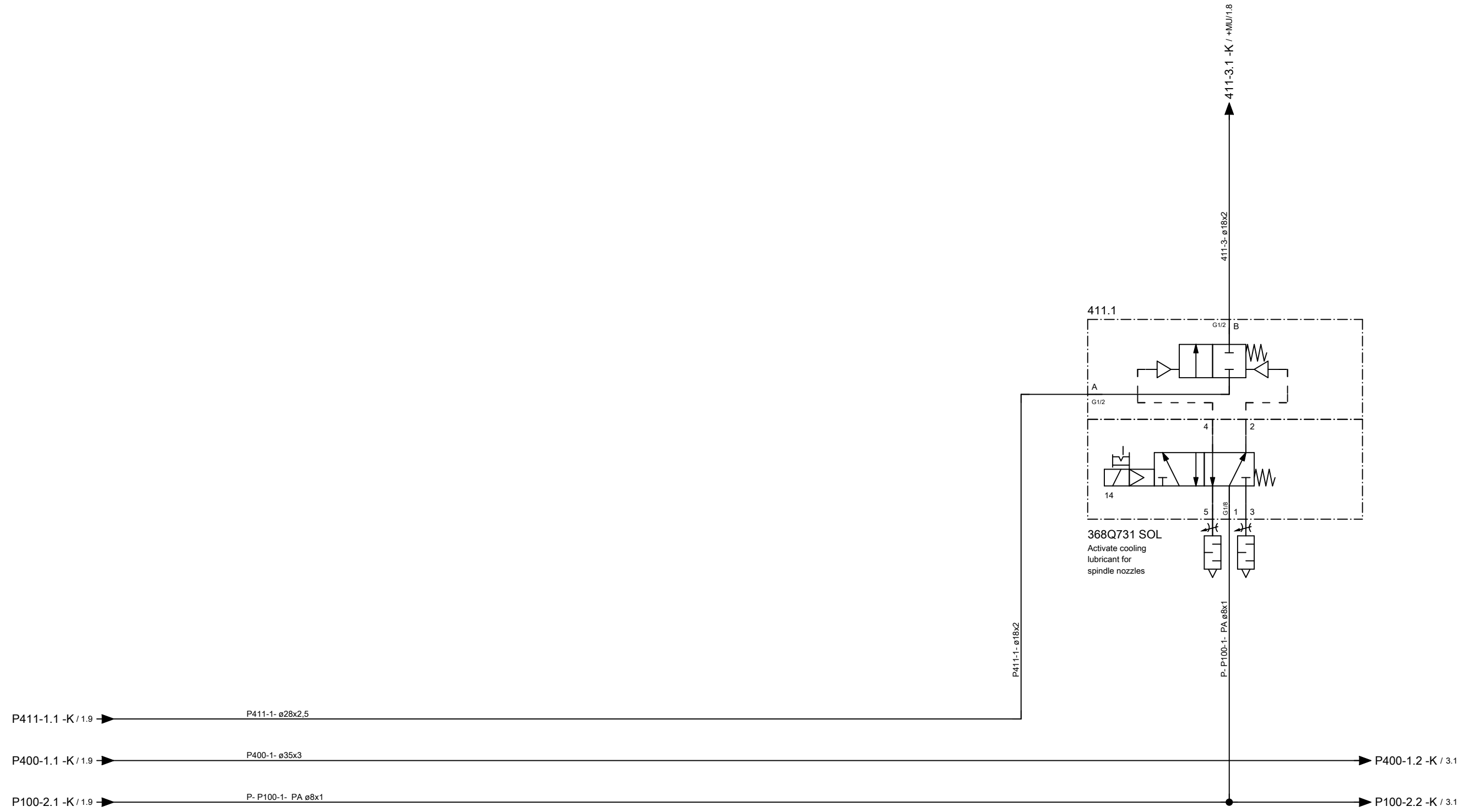
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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ./PROJ. | HELLER BENENNUNG/NAME/DENOMINAÇÃO coolant diagram | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| ePLAN 2.2.5 | | URSPPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | | Paccar, Columbus USA | project | MP.05480200_F |
| | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | H 10000 MC | | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | Document type | &K coolant diagram | |
| | | | | | | | | Mounting position | +H1 HELP1 | |
| | | | | | | | | Page name | 1 | |

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413
Cooling lubricant
multi-spindle head

+MU/1.8
411
Cooling lubricant
spindle nozzles



| | | | | | | | | | | | | | |
|---|--|--|--|---------------|-------------------|------------|-----------|----------------------|------------|-----------------|------------------------|--------------------|-------------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | coolant diagram | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | Document type | &K coolant diagram | Mounting position |
| | | | | | | | | | | | Page name | 2 | |

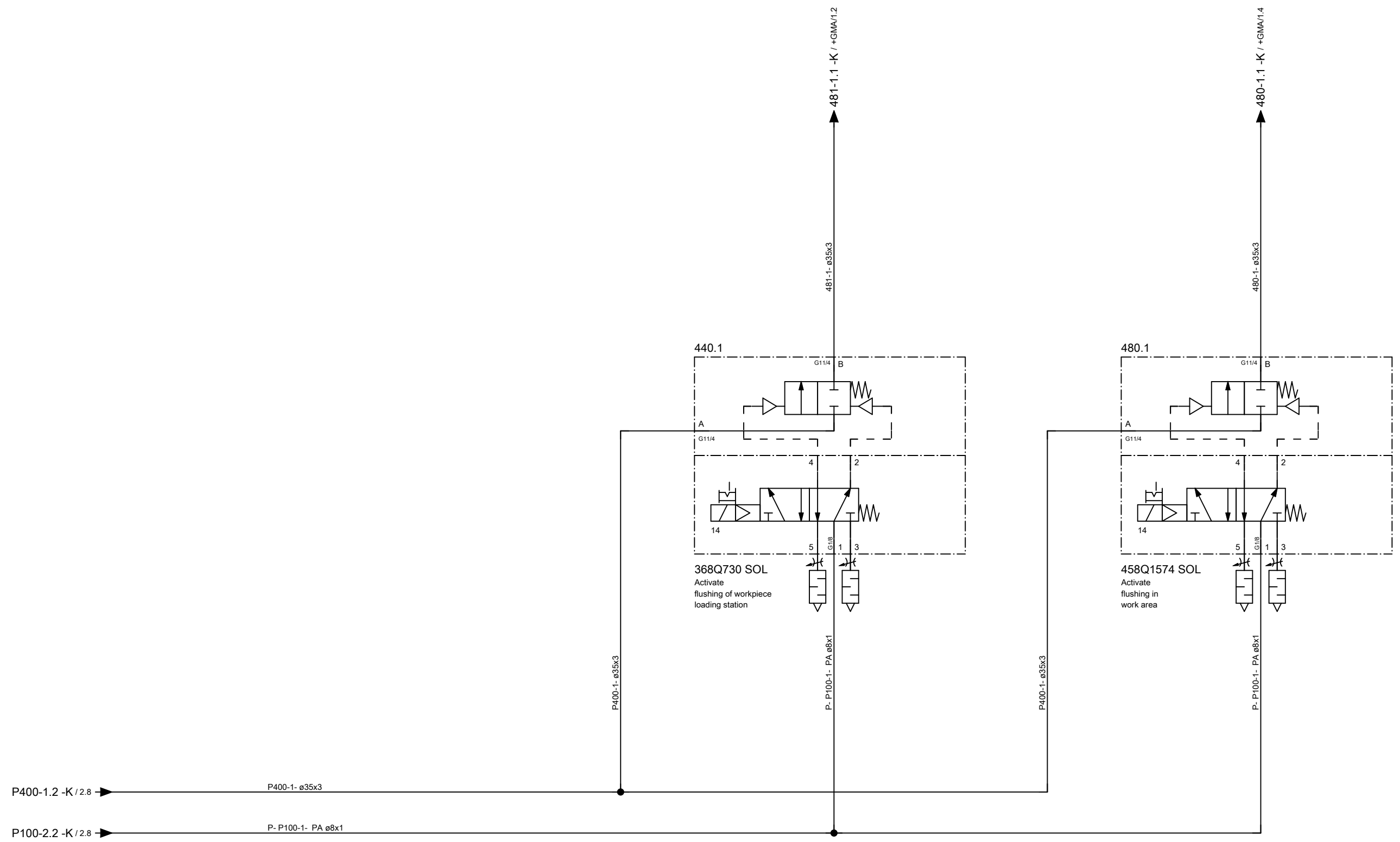
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Atenção! Atenção DIN 34

431
Cooling lubricant
tool cleaning, low
pressure, rack-type magazine

+GMA/1.2
440
Flushing
of workpiece loading station

+GMA/1.5
480
Flush
workpiece
in work area



P400-1.2 -K / 2.8 → P400-1- ø35x3

P100-2.2 -K / 2.8 → P- P100-1- PA ø8x1

← 2

+MU/1 →

| | | | | | |
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| CAD-System ePLAN 2.2.5 | URSPR./ORIG. | GEPR./CHECK./REG. | | | |
| | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | |
| | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | |

| | |
|----------------------|------------|
| PROJ./PROJ/ PROJ. | 54802.00 |
| M-NR/M-NO/ M-NO | M54802 |
| TYP/TYPE/ TIPO | H 10000 MC |
| WERKSTÜCK/ PART/PEÇA | |

HELLER

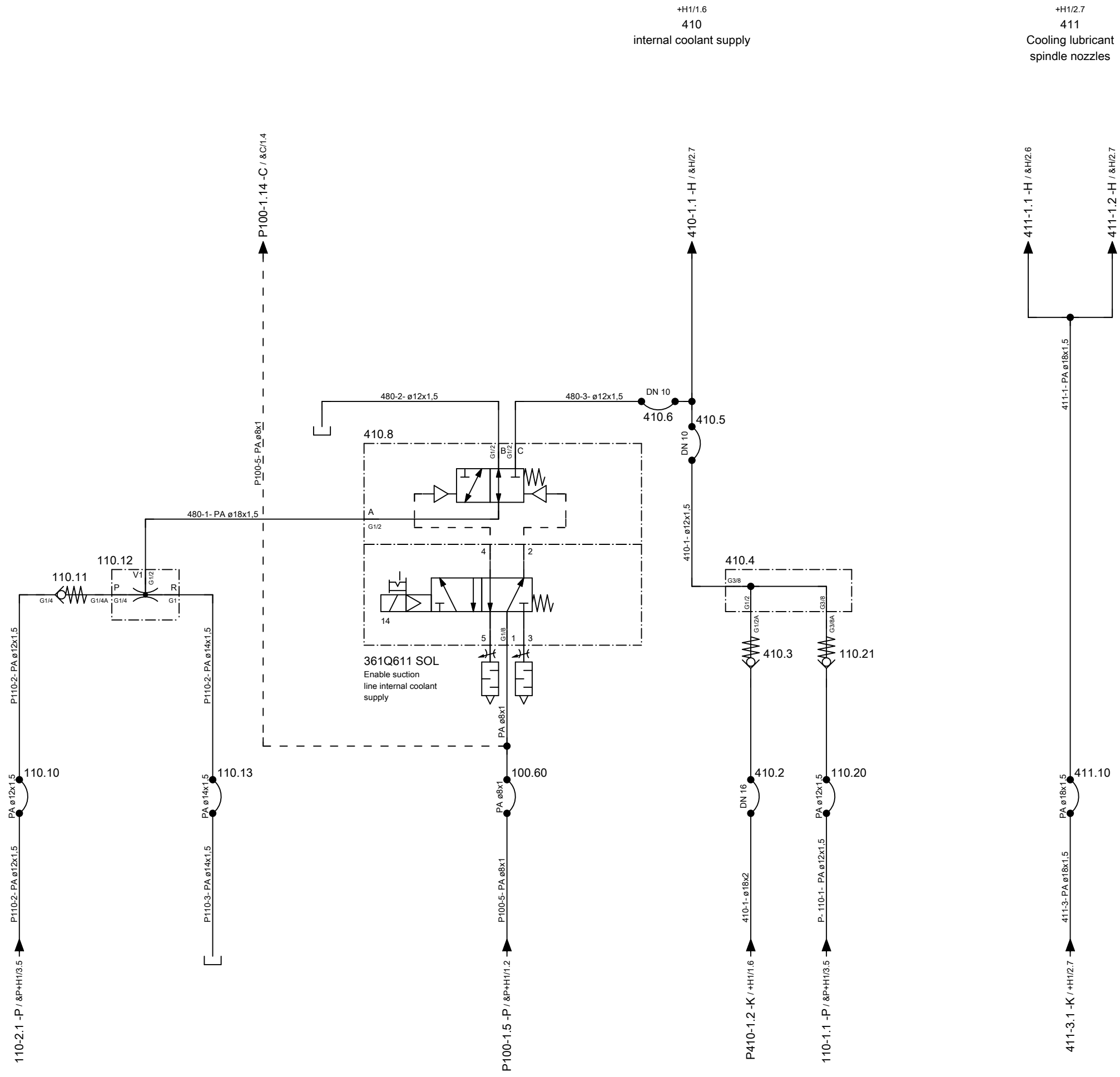
coolant diagram

| | |
|------------------------|----------------------|
| KUNDE/CUSTOMER/CLIENTE | Paccar, Columbus USA |
| INV-NR/INV-NO/NO-INV | |

| | | |
|-----------------|-------------------|--------------------|
| PLAN/PLAN/PLANO | project | MP.05480200_F |
| | Machine | =M54802 |
| | Document type | &K coolant diagram |
| | Mounting position | +H1 HELP1 |
| | Page name | 3 |

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← +H1/3 +GOS/1 →

| | | | | | | | | | | | | | |
|---|--|--|--|---------------|-------------------|------------|-----------|--------------------|-----------------|--|------------------------|-------------------|---------------|
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| CAD-System | | | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | M54802 | coolant diagram | | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | H 10000 MC | | | | | Document type |
| | | | | | | | | | | | | Mounting position | +MU unit |
| | | | | | | | | | | | | Page name | 1 |

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operating side

magazine side

Flushing below
the Z-cover

Flush X-axis

Flush
Z-Axis bed pan

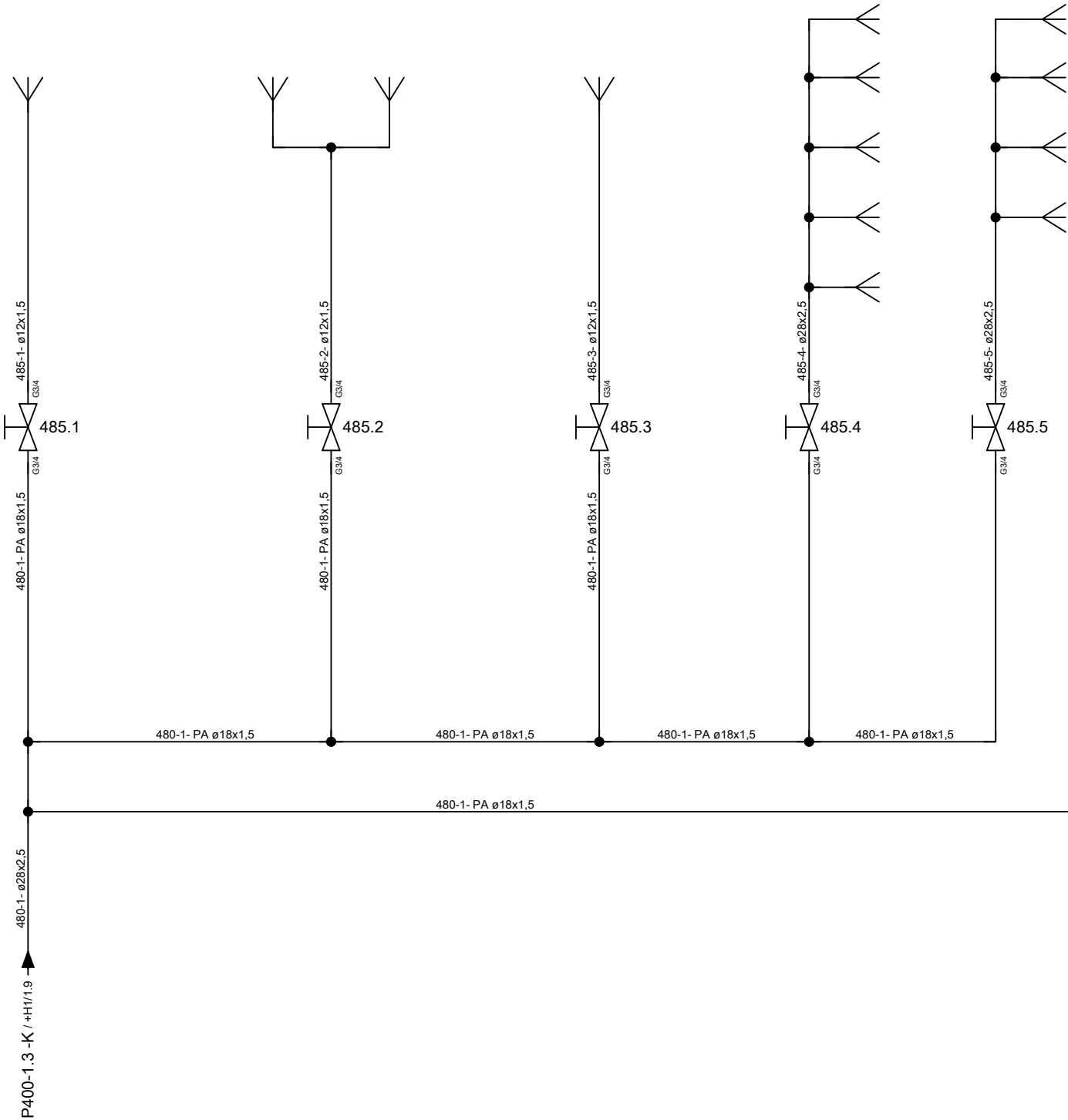
Flush
guard panels

Flush
frontside

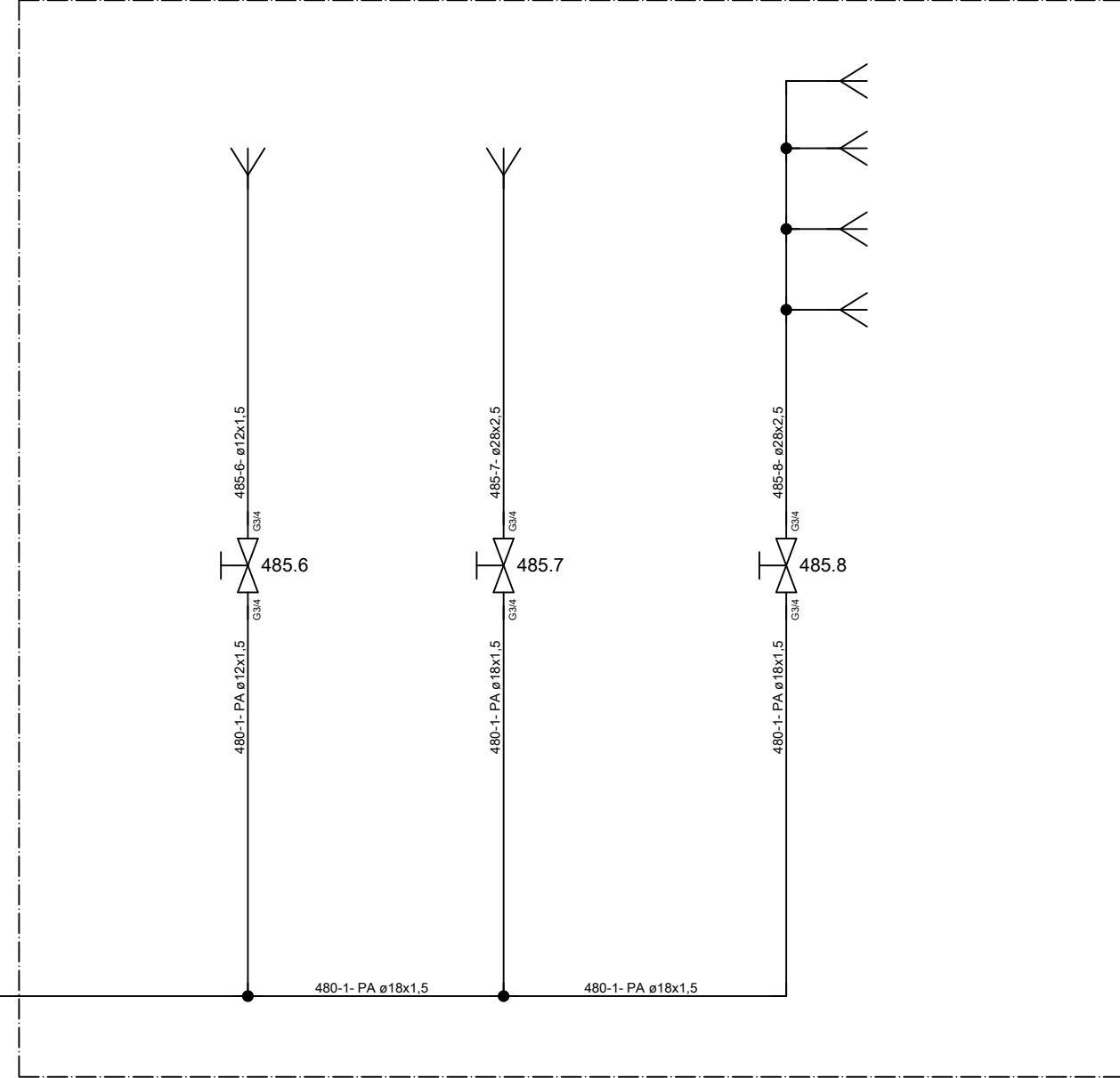
Flush X-axis

Flush
Z-Axis bed pan

Flush
guard panels



+GMS
guarding - magazin/maintenance side



← +MU/1

+GMA/1 →

| | | | | | | | | | |
|---|--|---------------|-------------------|------------|-----------|-------------------------|---|------------------------|--------------------------------|
| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | <p>HELLER</p> <p>BENENNUNG/NAME/DENOMINAÇÃO</p> <p>coolant diagram</p> | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO |
| CAD-System | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | | Paccar, Columbus USA | project |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | H 10000 MC | | INV-NR/INV-NO/NO-INV | Machine |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | Document type | MP.05480200_F |
| | | | | | | | | Mounting position | =M54802 |
| | | | | | | | | Page name | &K coolant diagram |
| | | | | | | | | | +GOS guarding - operating side |
| | | | | | | | | | 1 |
| | | | | | | | | | A3 |

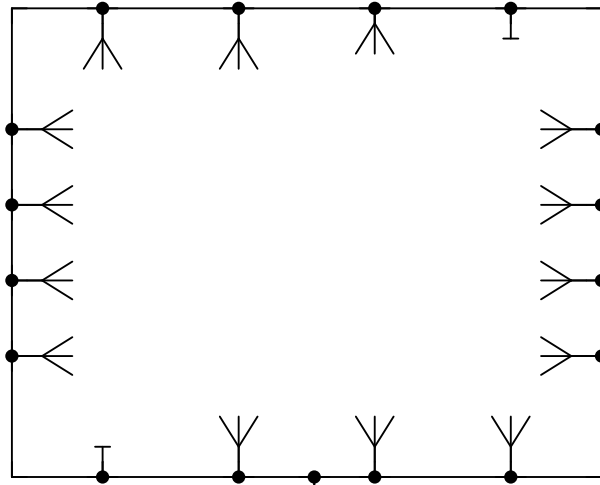
Heller_2L

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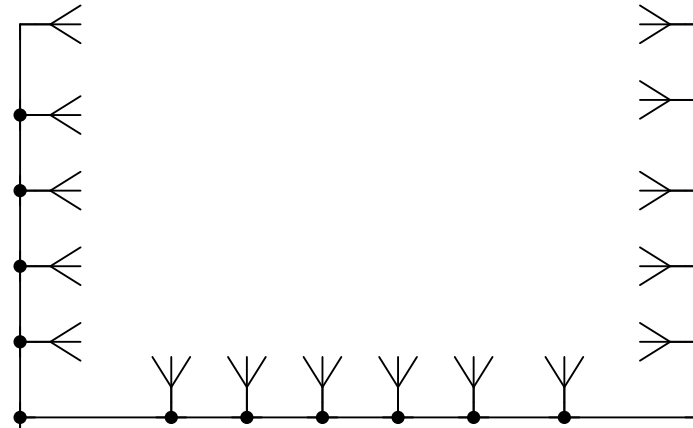
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+H1/3.5
440
Flushing
of workpiece loading station

+H1/3.7
480
Flush
workpiece
in work area



481-1.1 -K / +H1/3.5 -



480-1.1 -K / +H1/3.7 -

← +GOS/1

+CC/1 →

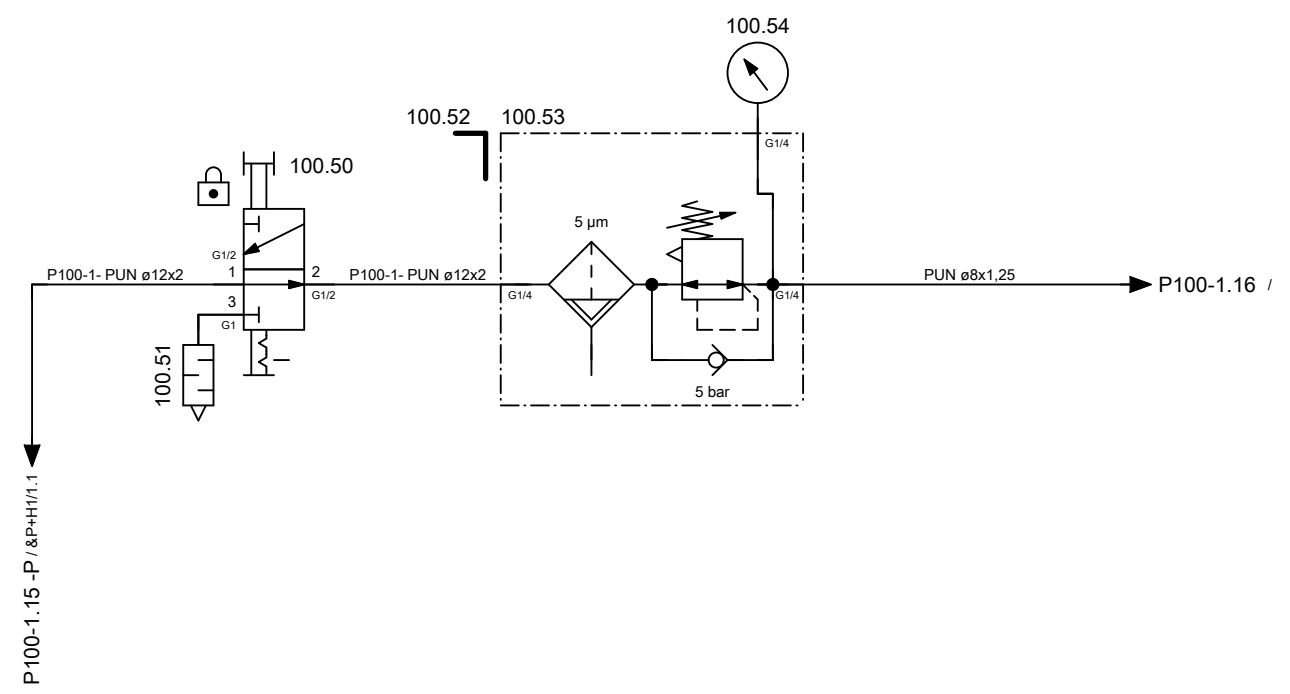
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| ART DER AENDERUNG/REVISION/DESCRIÇÃO DE ALTERAÇÃO | | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| CAD-System | | URSPR./ORIG. | GEPR./CHECK./REG. | | | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 04.04.2017 | AHFE/ZAJ | TYP/TYPE/ TIPO | H 10000 MC | coolant diagram | INV-NR/INV-NO/NO-INV | Machine | =M54802 |
| | | ERS.D./REP.W. | GEZ./DRAWN/DES. | 14.03.2016 | AHFE/HOP | WERKSTÜCK/ PART/PEÇA | | | | Document type | &K |
| | | | | | | | | | Mounting position | +GMA | guarding - machining area |
| | | | | | | | | | Page name | 1 | |
| | | | | | | | | | | A3 | |

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&P+H1/1.3
100
air supply
recirculating station



← +GMA/1

| | | | | | | | | | | | | | |
|-------------|--|---------------|-------------------|------------|-----------|-------------------------|-------------------------|----------------------|------------|-----------------|------------------------|-----------------|---------------|
| CAD-System | | URSPPR./ORIG. | GEPR./CHECK./REG. | Index | ZONE/ZONA | DATUM/DATE | NAME/NOME | PROJ./PROJ/ PROJ. | 54802.00 | HELLER | KUNDE/CUSTOMER/CLIENTE | PLAN/PLAN/PLANO | |
| ePLAN 2.2.5 | | ERS./REP. | BEARB./CHG./ALT. | 14.07.2016 | AHFE/ZAJ | M54802 | M54802 | M-NR/M-NO/ M-NO | M54802 | | Paccar, Columbus USA | project | MP.05480200_F |
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| | | | | | | WERKSTÜCK/ PART/PEÇA | WERKSTÜCK/ PART/PEÇA | | | | 13.504083 | Document type | &K |
| | | | | | | | | | | | Mounting position | +CC | chip conveyor |
| | | | | | | | | | | | Page name | 1 | |

Heller_2L

A3