

**DOUBLE OFFSET
BUTTERFLY VALVE**



**ARP
INDUSTRY**
VALVE TECHNOLOGY

**TYPE
COL20**



COL20 is a double offset butterfly valve widely known as high performance valves. Particularly suited for low pressure flue gas where there is no need to use PN10 or 150lbs rated valves, and where total tightness is required for temperatures up to 260°C.

They are used extensively for gas isolation, are lightweight and cost-effective while maintaining the required quality level.

These types of valves are manufactured with one blade connected by two shafts and are leak-proof in one direction only. Flow direction is indicated by the arrow.

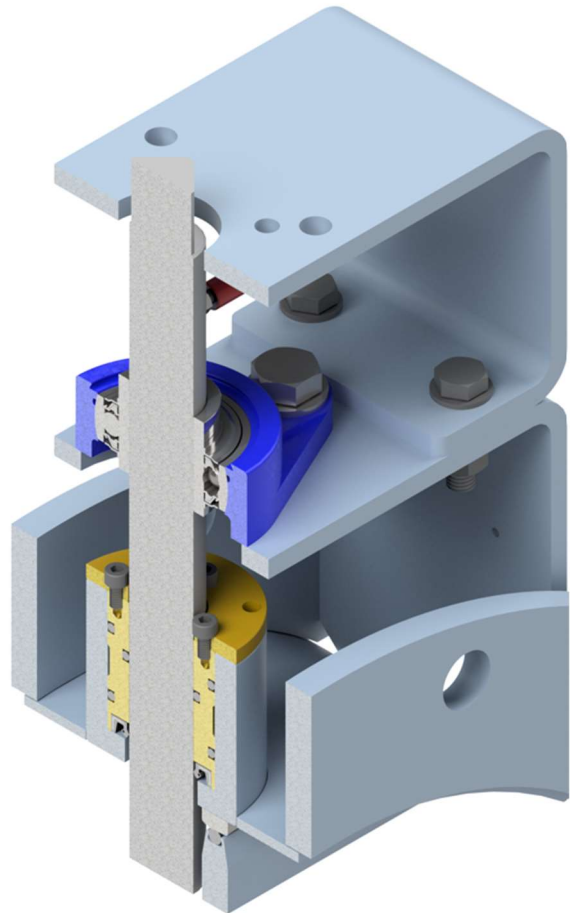
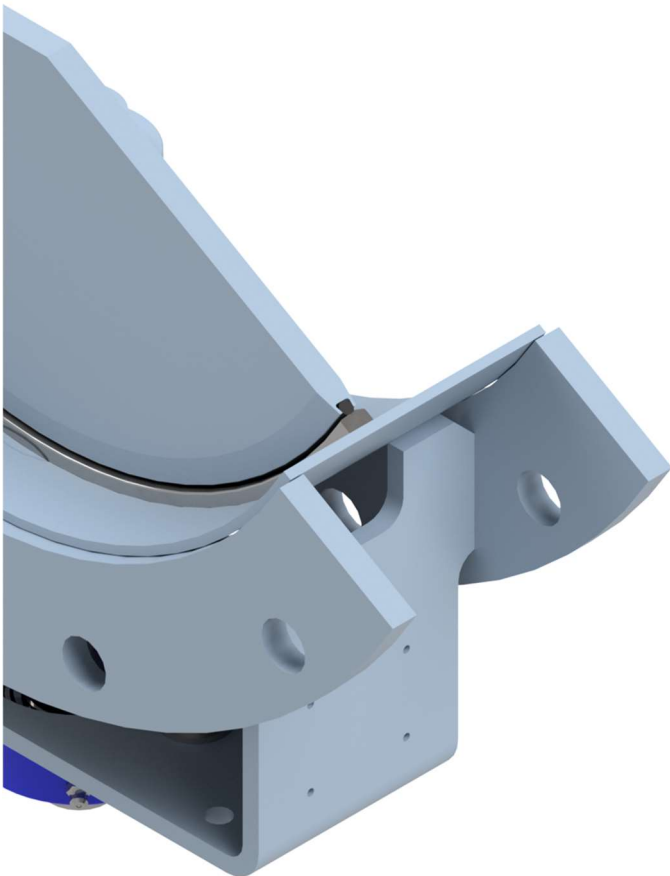
Tightness is guaranteed by perfect coupling of the self-adjusting gasket inserted on the perimeter of the blade and the stainless-steel seat. Robust design and high-quality materials ensure long life, low operating torque values and low friction.

Their construction allows easy maintenance with replacement of seals and bearings.

Leakage classes in compliance with ANSI FCI 70-2. Actuation can be added to all sizes and flanges can be designed to suit customised requirements. Shop tested for proper mechanical operation.

BLADE SEALING DESIGN

SHAFT SEALING DESIGN



Type: COL20

TECHNICAL CHARACTERISTICS:

- Diameter range DN80 ÷ DN1600
- Max pressure up to 3 barg (maximum pressure may vary depending on the valve diameter and maximum temperature)
- Interception service
- Designed for 50 mm insulation
- Max Leakage Class VI (FCI 70-2)

MATERIALS:

- Body and blade in carbon steel with stainless-steel shaft and seat
- Duplex stainless steel
- Austenitic stainless-steel

SHAFT PACKING:

- Energized rings and O-rings
- TA-Luft

SEAT PACKING:

- O-Ring blade seal in FKM (Viton), MVQ (Silicone), and encapsulated FEP/PFA

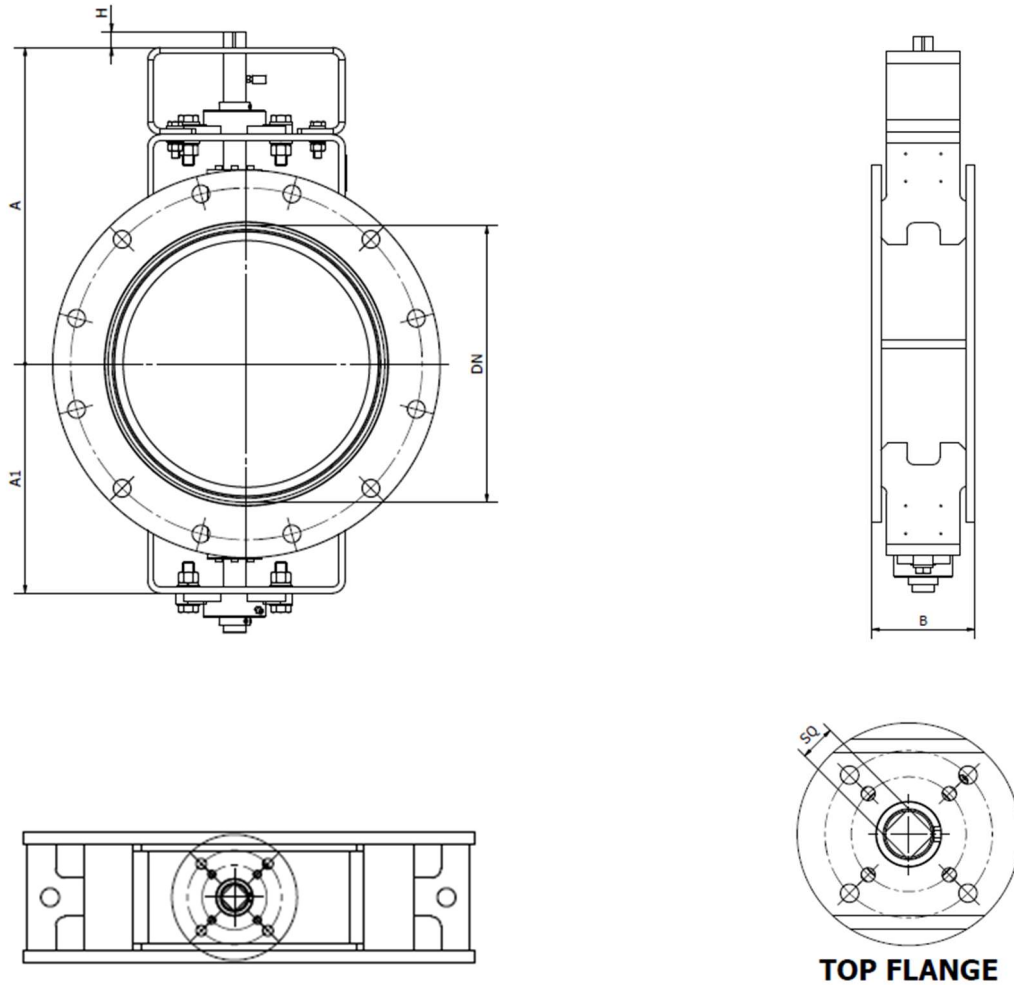
REFERENCE STANDARDS:

- Design EN 593, EN12516, ASME B16.34
- Top flange ISO 5211
- Connections flanges EN 1092-1, ASME B16.5, others on request
- Testing EN12266, ANSI/FCI 70-2, EN 60534
- Painting EN ISO 12944

DECLARATION OF CONFORMITY:

- Machinery directive 2006/42/CE
- Pressure equipment directive 2014/68/EU
- ATEX directive 2014/34/EU
Protection Ex h suitable for Zone 1 (EPL Gb) Gas IIA/IIB/IIC and Zone 21 (EPL Db) Dust IIC

DIMENSIONAL DRAWINGS:



TOP FLANGE

| DN | | Ø Int | A | A1 | B | SQ | H | TOP FLANGE | | WEIGHT | |
|------|------|-------|------|------|-----|----|----|------------|-----|---------|-------|
| mm | inch | | | | | | | ISO 5211 | | FLANGED | WAFER |
| 150 | 6 | 160,3 | 300 | 275 | 140 | 14 | 14 | F10 | F07 | 20 | 19 |
| 200 | 8 | 211,1 | 320 | 295 | 140 | 14 | 14 | F10 | F07 | 25 | 22 |
| 250 | 10 | 265,8 | 360 | 325 | 140 | 22 | 20 | F10 | F07 | 38 | 34 |
| 300 | 12 | 315,9 | 400 | 360 | 140 | 27 | 25 | F10 | F07 | 53 | 48 |
| 350 | 14 | 350 | 425 | 385 | 140 | 27 | 25 | F10 | F07 | 61 | 56 |
| 400 | 16 | 400 | 450 | 410 | 140 | 27 | 25 | F10 | F07 | 73 | 65 |
| 450 | 18 | 450 | 475 | 435 | 190 | 27 | 25 | F14 | F10 | 112 | 102 |
| 500 | 20 | 500 | 500 | 460 | 190 | 27 | 25 | F14 | F10 | 124 | 111 |
| 600 | 24 | 600 | 615 | 565 | 190 | 36 | 35 | F14 | F10 | 167 | 146 |
| 700 | 28 | 700 | 665 | 615 | 190 | 36 | 35 | F14 | F10 | 203 | 177 |
| 800 | 32 | 800 | 715 | 665 | 190 | 36 | 35 | F14 | F10 | 232 | 202 |
| 900 | 36 | 900 | 765 | 715 | 240 | 36 | 35 | F16 | | 357 | 322 |
| 1000 | 40 | 1000 | 855 | 795 | 240 | 46 | 45 | F16 | | 468 | 380 |
| 1100 | 44 | 1100 | 905 | 845 | 240 | 46 | 45 | F16 | | 552 | / |
| 1200 | 48 | 1200 | 955 | 895 | 240 | 46 | 45 | F16 | | 642 | / |
| 1300 | 52 | 1300 | 1005 | 945 | 240 | 46 | 45 | F16 | | 740 | / |
| 1400 | 56 | 1400 | 1105 | 1025 | 240 | 46 | 45 | F16 | | 974 | / |
| 1500 | 60 | 1500 | 1155 | 1075 | 240 | 55 | 50 | F16 | | 1101 | / |

* DN less than 150 available on request

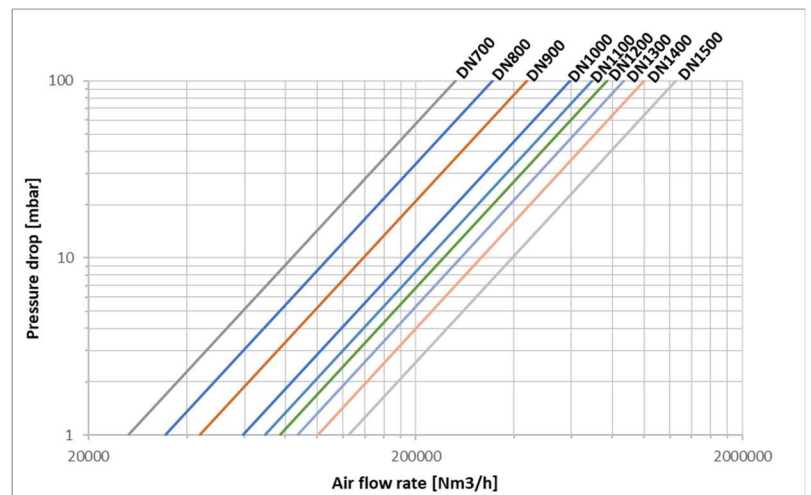
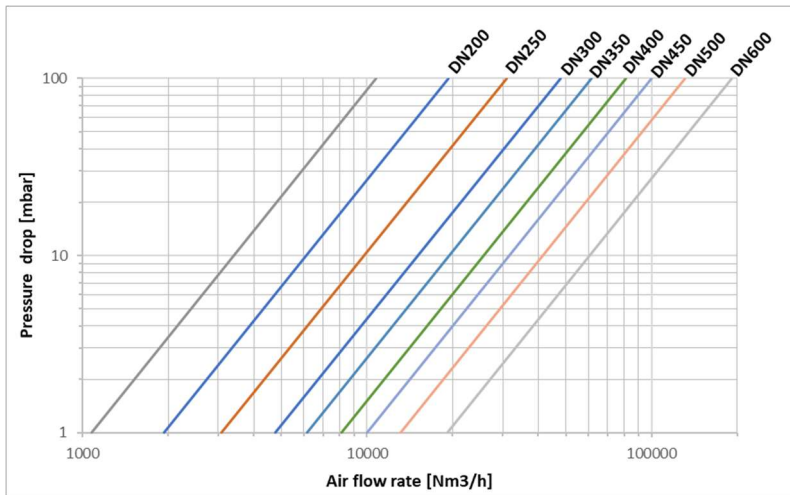
** DN above 1500 available upon request

*** ARP INDUSTRY reserves the right to make changes to its products at any time

FLOW COEFFICIENT (Kv VALUE):

| DN | NPS | OPENING ANGLE | | | | | | | | |
|------|-----|---------------|--------|-------|-------|-------|-------|-------|------|------|
| | | 90° | 80° | 70° | 60° | 50° | 40° | 30° | 20° | 10° |
| 150 | 6" | 1267 | 1080 | 765 | 488 | 311 | 182 | 98 | 46 | 9 |
| 200 | 8" | 2280 | 2011 | 1394 | 845 | 579 | 339 | 205 | 95 | 18 |
| 250 | 10" | 3632 | 3230 | 2184 | 1395 | 898 | 492 | 273 | 123 | 32 |
| 300 | 12" | 5619 | 4795 | 3344 | 2163 | 1420 | 866 | 494 | 208 | 48 |
| 350 | 14" | 7229 | 6204 | 4506 | 2832 | 1768 | 1022 | 619 | 254 | 55 |
| 400 | 16" | 9566 | 8129 | 5906 | 3650 | 2290 | 1399 | 792 | 353 | 63 |
| 450 | 18" | 11763 | 10117 | 7641 | 4922 | 2954 | 1670 | 1067 | 455 | 90 |
| 500 | 20" | 15431 | 12790 | 9640 | 6076 | 3947 | 2225 | 1290 | 533 | 113 |
| 600 | 24" | 22596 | 19296 | 13366 | 8897 | 5463 | 3343 | 2009 | 824 | 273 |
| 700 | 28" | 31219 | 26699 | 18287 | 11850 | 7617 | 4603 | 2747 | 1115 | 465 |
| 800 | 32" | 40624 | 35704 | 23965 | 16401 | 11086 | 5749 | 3447 | 1612 | 582 |
| 900 | 36" | 51702 | 46150 | 30706 | 20145 | 13556 | 7187 | 4304 | 1986 | 737 |
| 1000 | 40" | 70045 | 60097 | 39657 | 26217 | 17248 | 10072 | 5524 | 2425 | 1008 |
| 1100 | 44" | 81828 | 67072 | 45614 | 30049 | 19477 | 12068 | 6608 | 3003 | 1110 |
| 1200 | 48" | 90989 | 74035 | 53336 | 35398 | 22629 | 14439 | 8170 | 3349 | 1267 |
| 1300 | 52" | 102628 | 85643 | 61463 | 39831 | 25070 | 15077 | 8843 | 4091 | 1447 |
| 1400 | 56" | 118415 | 99862 | 67944 | 45377 | 27064 | 16109 | 9746 | 5103 | 1564 |
| 1500 | 60" | 147641 | 123212 | 85479 | 56496 | 35270 | 21376 | 12412 | 5894 | 2050 |

Flow rate of air at 20°C and atmospheric downstream pressure (P₂):



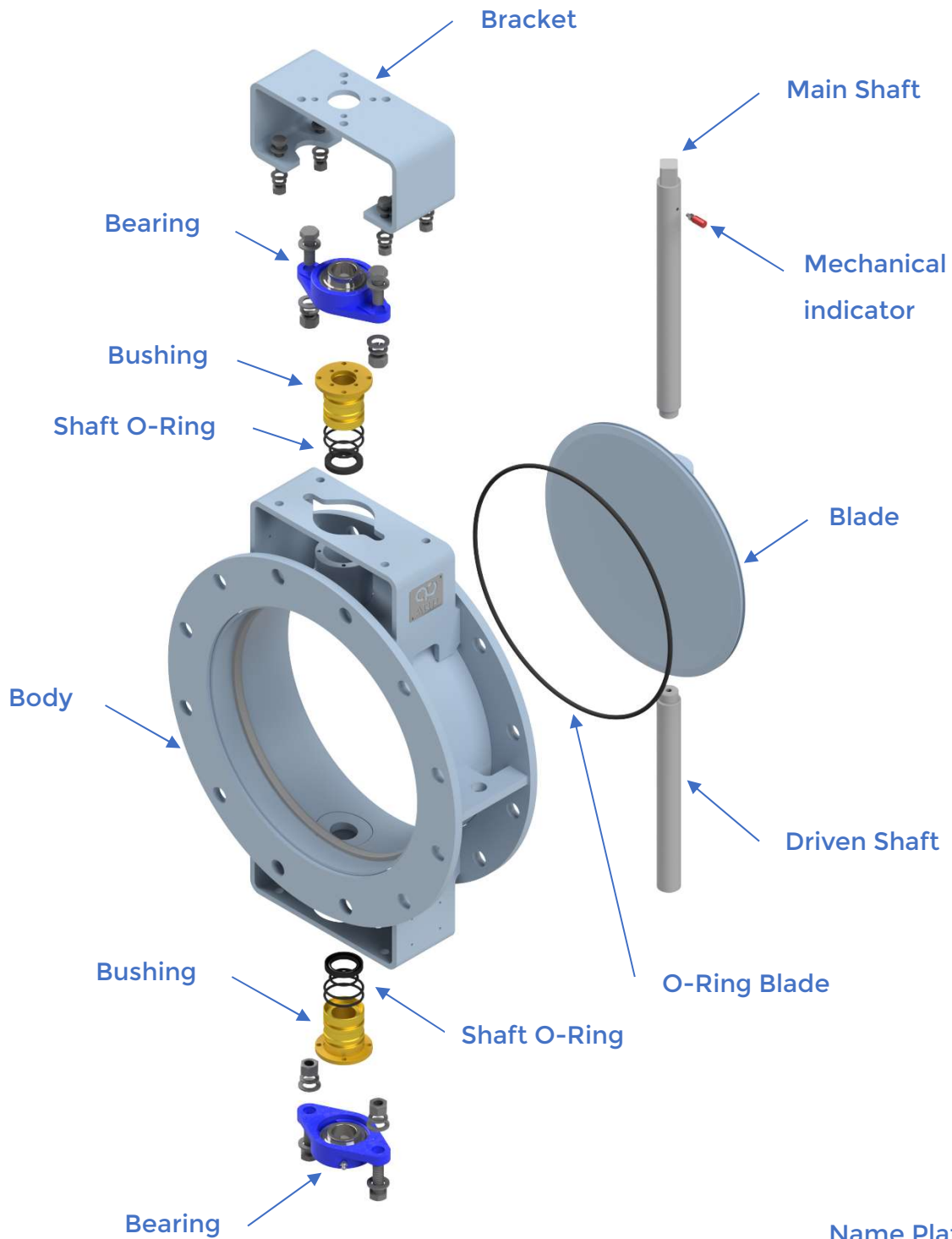
The pressure drop across the valve can be calculated with the following formula:

$$\Delta p = \frac{Q_N^2 \cdot S \cdot G_N \cdot T_1}{Kv^2 \cdot 457^2 \cdot p_2} \quad (\text{Valid for } P_2 \geq P_1/2)$$

Q_N [Nm³/h] is the volumetric flow
 Kv is the flow coefficient for a given disc position
 S.G._N is the specific gravity of the gas (relative to air)

P₁ [bar] is the fluid absolute upstream pressure
 p₂ [bar] is the fluid absolute downstream pressure
 T₁ [K] is the fluid absolute temperature at the valve inlet

EXPLODED VIEW:



Name Plate

| | | | |
|--|--|---|--|
|  ARP INDUSTRY <small>VALVE TECHNOLOGY</small> | | www.arpindustry.com | |
| TYPE: | | YEAR: | |
| SERIAL NUMBER: | | DN: | |
| END CONNECTION: | | | |
| Max Ts [°C]: | | Max Ps [barg]: | |
| BODY: | | DISC: | |
| SHAFT: | | SEAT: | |
| PUSH PACKING: | | | |
| TAG: | |  | |

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